

CURRICULUM VITE

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1. GENERAL INFORMATION

1-A. Educational background

1991	Ph.D.	University of Iowa, <i>Atomic Molecular and Laser Physics</i> .
1987	CERTIFICATE:	International Center for Theoretical Physics; Trieste, Italy.
1985	M.S.	Addis Ababa University Physics: <i>Surface Science</i> .
1977	B.S.	Addis Ababa University Physics <i>Sec. Education/Math minor</i>

1-B. Area of field of specialization

Experimental and Theoretical (Computational) Atomic, Molecular and Optical Physics /and Chemical Physics

1-C. Teaching and other professional experience

2024-25	Fulbright Scholar-Addis Ababa University- Ethiopia
2023-	Adjunct professor, IGSSA, Addis Ababa University, Ethiopia
2009-2010	Adjunct professor, Physics Department Addis Ababa University,
Ethiopia 2006-	Director, NOAA-ISET Center
2005	NATO Advanced Institute participant- Erice, Sicily
2004	Fellow: National Institute of Aeronautics (NIA)
2003-Present	Professor
2003	Visiting professor, Laboratory of Theoretical Chemistry Facultes de St-Jerome 13397 MARSEILLE
2000-2001	JILA visiting fellow
2001-2006	Chair, Department of Physics
1998- 2003	Associate Professor, Department of Physics, NCA&T
1997 spring	Acting Chairman: Department of Physics, NCA&T
1996 (summer) and	NRC/HBCU Faculty Fellow: Oak Ridge National
Laboratory 1997 (summer)	Chemical and Biological Physics Section
1995(summer)	Visiting Assistant Professor: University of Connecticut, Department of Physics.
1995(summer)	AWU-DOE Faculty Fellow: Los Alamos National Lab.
1994(summer)	Visiting Assistant Professor. University of Utah, Department of Chemistry
1993-1998	Assistant Professor: Department of Physics, NCA&T
1991-1993	Post-Doctoral Fellow: University of Utah, Chemistry
Department 1988-1991	Research Assistant: University of Iowa, Department of
Physics 1985-1987	Lecturer: Addis Ababa University, Addis Ababa, Ethiopia.
1983-1985	Research Assistant, Addis Ababa University, Addis Ababa, Ethiopia.

1-D. List honors and awards

- 2024-25- Fulbright Scholar, Addis Ababa University, Ethiopia
- Nominated for AGU Fellow
- 2019- Named Outstanding Senior Researcher for A&T (2019-2020)
- 2018-Teacher of the Year for College of Science and Technology
- 2017- Named Outstanding Senior Researcher for A&T
- 2016- Teacher of the Year for College of Arts and Sciences

- 2012 Leader for NCA&T Interdisciplinary Team Award- NCA&T
- **2011-Presidential Award for Excellence in Science, Math, and Engineering Mentoring**
- 2010-University of Iowa, College of Liberal Arts, Alumni Fellow, 2010
- 2006- Teacher of the Year, 2006
- 2001- JILA visiting fellowship, 2001-2002
- 2001- Named Outstanding Senior Researcher for A&T, 2001-2002
- 1998-Outstanding Faculty Mentor Award, NCAMP (NSF) April 1998.
- 1998-Faculty Award, National Honors, College of Arts and Sciences April 1998.

1-E. Membership (s) in professional organizations

Member and session organizer:	NSBP: National Society of Black
Physicists Member:	APS: American Physical Society
Member	AGU: American Geophysical Union
Founder and member	EPS: Ethiopian Physics Society and president (2013-2016)
Member	AAPT: American Association of Physics
Teachers Member and session organizer	AMS: American Meteorological Society
Member	AAAS: American Association for the Advancement of Science
Chair-	APS Edward A. Bouchet Award selection committee- 2014- 2015
Session Chair:	Role of Physics in Geosciences- SESAPS- 2008, 2010, 2013
Associate Member-	Ethiopian Academy of Sciences
Member:	UCAR membership Committee
Guest Editor:	Journal Atmosphere
Review Editor:	Atmosphere and Climate, a section within Frontiers in Environmental Science
Reviewer	Journal of Geophysical Research-Atmosphere
Reviewer	Journal of Geophysical Research- Geohealth
Reviewer	Atmospheric Chemistry and Physics

1. Details of Professional experience: Research

2-A. Summary of research productivity

Peer reviewed publications: 1991-2020	70 + 5- book chapters and reports
Abstracts, proceedings 1991-2020	213
Research grants funded as PI	29 proposals (\$27,549,501)
Research grants funded as Co-PI	4 proposals (\$1,637,691)
Total number of proposals submitted	165, (68) NSF

2-B. Previous research

- Spectroscopy of Transition State Dynamics (1988-2004)
- State-to- State Photochemistry (1988-1991)
- Laser Spectroscopy and Photodynamics (1991-1993)
- Electronic Structure Calculations, Quantum calculations (1991-Present)
- Photodetachment of H⁻ (summer 1995) (Los Alamos National Laboratory)
- Photochemistry of Metal CVD precursors in cluster environment and nano chemistry within clusters: Oak Ridge National Laboratory (1996) NCAT: 1999-2005

2-C. Current research

Atmospheric Chemistry (2006-

Spectroscopic techniques for atmospheric applications:

The focus is laboratory measurement of optical and physio-chemical properties of biomass burning (BB) aerosol from African fuels.

Laboratory studies are conducted to

- Explore impact of RH, aging, burn condition, morphology fuel type on optical and chemical properties.
- Measure emission factors of pollutants
- Determine the drivers of toxicity in BB emissions
- Model health impacts of biomass burning and trash burning in Africa
- Understand impact on climate and air quality

Modeling: Refractive index and fractal dimensions of fractal aggregates **Field Studies:** Field studies participation WINTER, FIREX, (recent)

Completed Projects:

1. Negative Ion proton transfer mass spectrometry to Measure: a) Acidities of gas-phase acids; b) Rate of H-transfer; c) Water cluster characterization. The goal is to get estimates of the free energy of hydration of carboxylate ions, and determination of the effective gas phase

acidity of hydrated carboxylate ions.

2. Investigate vibrational overtone initiated photodissociation processes that are significant sources of atmospheric radicals using cavity ring down spectroscopy. The vibrational O-H overtone absorption cross sections of carboxylic acids and other OH-containing species are necessary quantities to calculate the photochemical reaction rate constant (J) for reactions initiated by the excitation of the O-H overtone
3. Measurement of the Henry's law coefficient and first order loss rate of Isocyanic Acid in Water Solutions-Solubility Studies.
4. Heterogeneous uptake of SO₂ in the presence of non-precipitating clouds during the wintertime. Investigations examining the modification of the mass transport, oxidation, and atmospheric lifetimes of SO₂ due to winter conditions will take place.

2-D. Current and former collaborations

- **2000-2008- Laboratoire Aime Cotton and ASCI, Campus d'Orsay, France and, Laboratory of Theoretical Chemistry Facultes de St-Jerome 13397 MARSEILLE.** Theoretical and computational studies of Li-H₂, Li-N₂ and Li-CH₄ collisions.
- **2000-2006 -Duke University, UNC Chapel Hill and Stanford University:** ITR: Computational Geometry for Structural Biology and Bioinformatics.
- **2001-2002- JILA Research:** Joint Laboratory Astrophysics (NIST)/University of Colorado, Boulder. –Ultra-fast studies of molecular wave packet dynamics and time-resolved FTIR emission studies of molecular photofragmentation.
- **2004- Present – Addis Ababa University: Ethiopia; 2004-present:** geosciences, atmospheric sciences, and statistical physics.
- **2004-2010- PENN STATE, University of the Witwatersrand, South Africa:** Partnership for international research and education program in geosciences.
- **2006-2011- NOAA –ISET Center Partner (Subcontract) Minority Serving Institutions:** University of Alaska Southeast (UAS); California State University-Fresno (CSU-Fresno); City University of New York (CUNY), Fisk University (FU); University of North Carolina at Pembroke (UNCP). **Partner (Subcontract) Majority Serving Institution:** North Carolina State University (NCSU); University of Minnesota (UM)
- **2006- present- NOAA-ESRL:** Chemical Sciences Division: Atmospheric Chemistry
- **2010-** Collaborations on NSF-PIRE – six US universities (UC Berkeley, Cornell, NCSU, UCONN, CUNY, Howard) and six universities in five East African countries (Egypt, Ethiopia, Kenya, Tanzania, and Uganda) on an NSF-Partnership for International Research and Education (PIRE) project entitled- The Impact of Climate Change on Hydrology: A Comprehensive Measurement and Modeling Study.
- **2014-** Collaboration between NC New Schools project and Guilford Country Schools on NSF Teacher Professional Development proposal and NASA Educator professional training proposal
- **2018- present- Colorado State University, Howard University-** Recent NSF-HBCU-UP Research Excellence award
- **2019- Present- UNC-Chapel Hill and RTI-** Health Impact studies of Biomass Burning aerosols
- **2015 – Present- University of Washington, Georgia Tech, NOAA Earth Systems Research Lab, Colorado State University, National Center for Atmospheric Research (NCAR)-** on Wintertime Investigation of Transport, Emissions, and Reactivity (WINTER) campaign:
- **2018- Present -Aerodyne Research, NASA, UÇ-Berkeley, NCAR, Georgia tech,**

National Forest Service Collaboration on field study Fire Influence on Regional and Global Environments Experiment (FIREX-AQ):

- **2015- Present-** International Research Collaboration in Geophysics and Air Quality:
Botswana International University of Science and Technology-Botswana, Addis Ababa University of Science and Technology and Addis Ababa University- Ethiopia
- **2019-** North Carolina State Climate Report Panel member
- **2020-** Georgia Tech, Arizona State University and University of Georgia on NSF-ERC Proposal
- **2020-** Columbia University- Air quality sensor networks and capacity building in East Africa
- **2019-** University of Birmingham- Air Quality Studies in East Africa
- **2021:** UNC-Chapel Hill on a new project on chemical characterization of biomass burning aerosol
- **2022-** Lunde University together for cleaner air project for Ethiopia, funded by Swedish Government
- **2023-** York University (UK), Birmingham University (UK)- East African Air Quality Research.
- **2022-23.** Los Alamos Nation Lab – DoE Funded project Studies of optical and chemical properties of aged and fresh biomass burning absorbing aerosols for climate models.
- **2023-** PNNL- Climate Resiliency Center (DoE)
- **2023-25-** University of Genoa, Italy, Kenyatta University, Kenya

2-E. Refereed publications

Book Chapters & Reports

1. Wallace, D. J. Funk, J. G. Kaup, **Solomon Bililign**, M. D. Morse and W. H. Breckenridge. “Half-Collision Studies of Singlet-to-Triplet Energy Transfer within Electronically Excited CdH₂ and CdD₂ Complexes.” *The Chemical Dynamics and Kinetics of Small Radicals*, Eds. B. Liu and A. Wagner (World Scientific, 1996). ISBN-13: 978-9810229856
2. **S. Bililign**, B Hattaway, “Energy Transfer and Reactions in Li(np) –Ar, H₂, CH₄ Collisions,” *Recent Research Developments in Chemical Physics*, **39** (2002) 249-269, Transworld Research Network. ISBN: 8178950669 9788178950662
3. **Solomon Bililign** and P. D. Kleiber. “Reaction Dynamics of Na (4²P) + H₂: Effects of Reactant Orbital Alignment on product State distribution,” *Spectral Line Shapes*, **V6**, Editors: Lothar Frommhold and John Keto, (AIP Press, NY 1990) [ISBN 10: 0883187914](#)[ISBN 13: 9780883187913](#)
4. **Solomon Bililign**, (2016). Integrating Research into Teaching for Enhanced Recruitment and Training of Undergraduates. *A research mentoring guide for early career stem faculty at HBCU's*”. quality education for minorities (QEM) NETWORK. Published.
5. Taboada, H., Ferregut, C., Flores, B., **Bililign, S.**, Engel, L., Rathbun, L., Ramos, I. and Winter, R. (2020) Broadening Participation of Underrepresented Minorities in STEM Research Abroad. Public Report.
<https://www.utep.edu/engineering/imse/stemresearchabroad/Files/docs/TABOADA---OISE1848137-report.pdf>

Journal Articles:

1. Laxmi Odari, Brian J. Gaudet, Samson Hagos, Marc Fiddler, Manish Shrivastava, Solomon Bililign “The Impact of Volatile Organic Compounds and Oxides of Nitrogen on Ground-Level Ozone and Secondary Organic Aerosols Formation Over the Triad Region in North Carolina” *Submitted to the Journal of Geophysical Research Atmosphere*, 2025
2. Andualem Ayele, Andualem Mekonnen, Eyale Bayable, Marc N. Fiddler, George Stone, Solomon Bililign ‘Knowledge, Perceptions, and Practices of Traffic Police Officers towards Air Pollution in Addis Ababa, Ethiopia: An Exploratory Study’ *Submitted to International Journal of Environmental Research and public Health*, 2025
3. Cade M. Christensen, Megan M. McRee, Marc N. Fiddler, **Solomon Bililign**, Barbara J. Turpin, Jason D. Surratt, “Chemical Characterization of Primary Water-Soluble Organic Gas Emissions from African Biomass Burning” *Environmental Science and Technology-Air*, ACS EST Air 2025, 2, 11, 2577–2587 <https://pubs.acs.org/doi/10.1021/acsestair.5c00229>
4. Janica Gordon, Kelsey R. Bilsback, Marc N. Fiddler, Gizaw Mengistu Tsedu Jeffrey R. Pierce, **Solomon Bililign**, 2024, “Impact of residential combustion on black carbon levels in southern Africa: Field measurements and GEOS-Chem simulations” *Atmospheric Pollution Research*, Feb 2025 <https://www.sciencedirect.com/science/article/abs/pii/S1309104225003095>
5. Marc N. Fiddler, Vaios Moschos, Megan M. McRee, Abu Sayeed Md Shawon, Kyle Gorkowski, James E. Lee, Nevil A. Franco, Katherine B. Benedict, Samir Kattel, Chelia Thompson, Manvendra K. Dubey, **Solomon Bililign**. “Findings of the African Combustion A Collaborative Intercomparison Analysis (ACACIA) Pilot Project to Understand the Optical Properties of Biomass Burning Smoke” *Submitted to Atmospheric Measurement Techniques*, June 2025 <https://egusphere.copernicus.org/preprints/2025/egusphere-2025-2720>
6. Wenfu Tang , Rajesh Kumar , Anna Del Moral Méndez , Felicity Ahafiany Akintomide, Akinsanola, Agbeli Ameko, Marleen Dekker , Rong Fu , Benjamin Gaubert , Samson Hagos , Cenlin He, Forrest Lacey , Kelly Núñez Ocasio, Isla R. Simpson , Kassahun Ture , Christopher D. Wirz , Ronnie Abolafia-Rosenzweig, Emmanuel Audu, Shima Bahramvash-Shams , **Solomon Bililign**, Roelof Brountjes, Cyndi Castro , Belay Demoz, Ismaila Diallo , Ross D. Dixon, Jimmy Dudhia , Abdulamid A. Fakoya, Rebecca M. Garland, Cindy Halley Gotway , Yaoxian Huang, Ata Hussain , Dorcas Idowu, Yan Jiang, Agnieszka Kazimierczuk, Peter Lawrence , Danny M. Leung , Samar Minallah , Naoki Mizukami , Israel R. Orimoloye, Paul A. Kucera, Kwesi A. Quagraine , Addisu Semie, Daniel M. Westervelt, Daile Zhang, Zhe Zhang , Helen Worden , Pieter F. Levelt “Unlocking the Potential of Collaborative Research on Africa's Environmental Challenges: 2 Perspectives on Air Quality and Health, Climate and Weather, Land and Water, and Society” In Press: *Bulletin of American Meteorological Society*, April 2025 <https://journals.ametsoc.org/view/journals/bams/aop/BAMS-D-24-0118.1/BAMS-D-24-0118.1.pdf>
7. Tommaso Isolabella, Marco Brunoldi, Federico Mazzei, Franco Parodi, Paolo Prati, Virginia Vernocchi, Vera Bernardoni, Gianluigi Valli, Roberta Vecchi, Paola Formenti, Clarissa Baldo, Mathieu Cazaunau, **Vaios Moschos**, **Solomon Bililign**, Marc N. Fiddler, Dario Massabò; “The Broadband Light Analyzer of Complex Aerosol: characterization and first applications,” *Atmospheric Environment*, 2025, (1) 358, pp. 12314 <https://doi.org/10.1016/j.atmosenv.2025.121341>
8. **Marc N. Fiddler**, **Chelia Thompson**, Rudra P. Pokhrel, Francesca Majluf, Manjula Canagaratna, Edward C. Fortner, Conner Daube, Joseph R. *Roscioli*, Tara I. Yacovitch, Scott C. Herndon, **Solomon Bililign**. (2024) “Emission factors from wildfires in the Western US – An investigation of fuel type and diurnal dependencies during the FIREX-AQ 2019 campaign.” *Journal of Geophysical Research-Atmosphere*, Vol 129, Issue 1, <https://doi.org/10.1029/2022JD038460>
9. **Moschos, V.**, Christensen, C., **Megan McRae**, **Fiddler, M. N.**, Turpin, B. J., **Bililign, S.**, Surratt, J.D., et al.: (2024) “Quantifying the light-absorption properties and molecular composition of brown carbon

aerosol from African biomass combustion,” *Environ. Sci. Technol.* 2024, 58, 9, 4268–4280 <https://doi.org/10.1021/acs.est.3c09378>

10. **Solomon Bililign**, Steven S. Brown, Daniel M. Westervelt, Rajesh Kumar, Wenfu Tang, Frank Flocke, William Vizuete, Kassahun Ture, Francis D. Pope, Belay Demoz, Akua Asa- Awuku, Pieter F. Levelt, Egide Kalisa, Alex Ndyabakira, “East African Megacity Air Quality (EAMAQ): (2024) Rationale and Framework for a Measurement and Modeling Program,” *Bulletin of American Meteorological Society*, 105, 8, E1584–E1602, <https://doi.org/10.1175/BAMS-D-23-0098.1>
11. Abhishek Anand, N’Datchoh Evelyne Touré, Julien Bahino, Sylvain Gnamien, Allison Felix Hughes, Raphael E Arku, Victoria Owusu Tawiah, Araya Asfaw, Tesfaye Mamo, Sina Hasheminassab, **Solomon Bililign**, **Vaios Moschos**, Daniel M. Westervelt Albert A. Presto* (2024) “Low-Cost Hourly Ambient Black Carbon Measurements at Multiple Cities in Africa” *Environ. Sci. Technol.* 2024, 58, 28, 12575–12584, <https://doi.org/10.1021/acs.est.4c02297>
12. **Megan McRea**, **Vaios Moschos**, **Marc N. Fiddler**, Dario Massabò, Jason D. Surratt, and **Solomon Bililign**, 2024 "Influence of relative humidity and aging on the optical properties of organic aerosols from burning African biomass fuels" *Aerosol Science and Technology*, 23(1) <https://doi.org/10.1080/02786826.2024.2412652>
13. **Markie’Sha James**, **Vaios Moschos**, **Megan M. McRae**, **Marc N. Fiddler**, Barbara J. Turpin, Jason D. Surratt, and **Solomon Bililign**, 2024 “Real-time chemical characterization of primary and aged biomass burning aerosols derived from Sub-Saharan African biomass fuels in smoldering fires”. - *Environmental Sciences-Atmosphere-DOI* <https://doi.org/10.1039/D4EA00110A>
14. Katherine S. Hopstock, Qiaorong Xie, Michael A. Alvarado, **Vaios Moschos**, **Solomon Bililign**, Jason D. Surratt, Alexander Laskin, Sergey A. Nizkorodov, 2024 “Molecular characterization and photoreactivity of organic aerosols from urban material combustion at the wildland-urban interface” - *Environmental Science and Technology-Air, ACS EST Air* 2024, 1, 11, 1495–1506 <https://doi.org/10.1021/acsestair.4c00215>
15. Olivia G. Norman, Colette L. Heald, Pedro Campuzano-Jost, Hugh Coe, Marc N. Fiddler, Jaime R. Green, **Solomon Bililign**, Jose L. Jimenez, Katharina Kaiser, Jin Liao, Ann M. Middlebrook, Benjamin A. Nault, John B. Nowak, Johannes Schneider, and André Welti, 2024 “Exploring the processes controlling secondary inorganic aerosol: Evaluating the global GEOS-Chem simulation using a suite of aircraft campaigns” *Atmospheric Chemistry and Physics*, <https://doi.org/10.5194/egusphere-2024-2296>
16. Adrienne Lambert, Cade Christensen, Megan Mouton, Vaios Moschos, Markiesha James, Janica Gordon, Haley M. Royer, Marc Fiddler, Barbara J. Turpin, **Solomon Bililign**, * and Jason D. Surratt, * (2024) “Chemical Characterization of Organic Aerosol Tracers Derived from Burning Biomass Indigenous to Sub-Saharan Africa: Fresh Emissions Versus Photochemical Aging” *Environmental Sciences and Technology-Air, Cite this: ACS EST Air* 2024, 1, 11, 1463–1482- <https://doi.org/10.1021/acsestair.4c00206>
17. Megan Mouton, Kotiba A. Malek, Markie’Sha James, Rudra Pokhrel, Marc N. Fiddler, Akua A. Asa-Awuku, and **Solomon Bililign**, (2023) The Hygroscopic Properties of Biomass Burning Aerosol from Biomass Fuels-Eucalyptus and Dung under Different Combustion Conditions, *Aerosol Science and Technology*, Volume 57, Issue 7 <https://doi.org/10.1080/02786826.2023.2198587>
18. Timothy Honablew, Rudra Pokhrel, Marc fiddler and **Solomon Bililign** (2023), “Fractal Dimensions of Biomass Burning Aerosols from TEM Images using Box Grid Method

and Nested Square Method” *Atmosphere* **2023**, 14(2), 221,
<https://doi.org/10.3390/atmos14020221>

19. Janica N. D. Gordon, Kelsey R. Bilsback, Marc N. Fiddler, Rudra P. Pokhrel, Emily V. Fischer, Jeffrey R. Pierce, **Solomon Bililign** (2023) “The Effects of Trash, Residential Biofuel, and Open Biomass Burning Emissions on Local and Transported PM_{2.5} and its Attributed Mortality in Africa” *GeoHealth*, Vol.7, Issue 2; <https://doi.org/10.1029/2022GH000673>
20. Christina Isaxon, Asmamaw Abera, Araya Asfaw, **Solomon Bililign**, Axel Eriksson, Ebba Malmqvist, Kedir Teji Roba, (2022), A call for action: Air Pollution, a serious health and economic hazard suffocating Africa, *Clean Air Journal*, Vol 22 #2
DOI: <https://doi.org/10.17159/caj/2022/32/2.15116>
21. Jacquelyn K Shuman, Solomon Bililign, et al. (2022) “Reimagine fire science for the Anthropocene”, *PNAS Nexus*, pg115, <https://doi.org/10.1093/pnasnexus/pgac115>
22. Rudra Pokherl, Janica Gordon Marc N Fiddler, **Solomon Bililign** (2021)
“Determination of Emission Factors of Pollutants from Biomass Burning of African fuels in Laboratory Measurements, *Journal of Geophysical Research-Atmosphere-V* 120, Issue 20 <https://doi.org/10.1029/2021JD034731>
23. Rudra Pokherl, Janica Gordon, Marc N. Fiddler, **Solomon Bililign**. (2021) “Impact of Combustion Conditions on Physical and Morphological Properties of Biomass Burning Aerosol”. *Aerosol Science and Technology*, **2021**, 55(1), 80-91,
<https://doi.org/10.1080/02786826.2020.1822512>
24. Jaime Ross Green. Marc Nicholas Fiddler, Dorothy L. Fibiger, Erin E. McDuffie, Pedro Campuzano-Jost, Jason Clay Schroder, Jose L. Jimenez, Andrew John Weinheimer, Glenn M. Wolfe, **Solomon Bililign**, Steven S. Brown (2021) “Wintertime Constraint of Primary and Secondary Formaldehyde Emission Sources over the Eastern Coastal United States.” *Journal of Geophysical Research-Atmosphere*, **2021**, 126(5), e2020JD033518,
<https://doi.org/10.1029/2020JD033518>
25. W. Lassman, J.R. Pierce, Bangs, A. P. Sullivan, B. Ford, G. Mengistu Tsidu, J.P. Sherman, J. L. Collette, **Solomon Bililign**, (2020) “Using low-cost measurement systems to investigate air quality: a case study in Palapye, Botswana” *Atmosphere*, 11(6) 583. <https://doi.org/10.3390/atmos11060583>
26. Kunkel, K. E, D.R. Easterling, A. Ballinger, **Solomon Bililign**, S.M. Champion, D.R. Corbett, K. D. Dello, J. Dissen, G. M. Lackmann, R. A. Luettich, Jr., L.B. Perry, W.A. Robinson, L.E. Stevens, B. C. Stewart, and A. J. Terando, {2020): “North Carolina Climate Science Report.” North Carolina Institute of Climate Studies, 233PP.
<https://ncics.org/nccsr>
27. Damon Smith, Marc N. Fiddler, Cui Tianqu, Rudra Pokherl, Jason D. Surratt, **Solomon Bililign** (2020). “Laboratory studies of fresh and aged biomass burning aerosols emitted from sub-Saharan Africa biomass fuels – PART II: Chemical properties and characterization”. *Atoms. Chem. Phys.* **2020**, 20(17), 10169-10191,
<https://doi.org/10.5194/acp-20-10169-2020>

28. 23. Damon Smith, Rudra Pokherl, Marc N. Fiddler, **Solomon Bililign** (2020). “Laboratory studies of fresh and aged biomass burning aerosols emitted from sub-Saharan Africa biomass fuels – PART 1: Optical properties.” *Atmos. Chem. Phys.* **2020**, *20*(17), 10149-10168, <https://doi.org/10.5194/acp-20-10149-2020>
29. Emmanuel Sarpong, Damon Smith, Marc N. Fiddler, **Solomon Bililign** (2020). “Refractive Indices of Biomass Burning Aerosols Obtained from African Biomass Fuels using RDG Approximations”. *Atmosphere* **2020**, *11*(1), 62; doi: 10.3390/atmos11010062 <https://doi.org/10.3390/atmos11010062>
30. Jessica D. Haskins, Felipe D. Lopez-Hilifiker, Ben H. Lee, Viral Shah, Glenn M. Wolfe, Joshua DiGangi, Dorothy L. Fibiger, Erin E. McDuffie, Patrick R. Veres, Jason C. Schroder, Pedro Campuzano-Jost, Douglas A. Day, Jose L. Jimenez, Andrew J. Weinheimer, Tamara L. Sparks, Ronald C. Cohen, Teresa L. Campos, Amy P. Sullivan, Hongyu Guo, Rodney J. Weber, Jack Dibb, Jaime R. Green, Marc N. Fiddler, **Solomon Bililign**, Lyatt Jaeglé, Steven S. Brown, Joel A. Thornton (2019). “Anthropogenic control over wintertime oxidation of atmospheric pollutants.” *Geophysical Research Letters*, **2019**, *46*(24), 14826-14835; <https://doi.org/10.1029/2019GL085498>
31. **Solomon Bililign**, (2019) “Building Capacity in Geosciences at HBCU’s”, *Journal of Geosciences Education*, *67*; 4 351-356. <http://dx.doi.org/10.1080/10899995.2019.1636337>
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2-F. Presentations - Research conference bulletin abstracts and seminars

1. Tesfaye Mamo Mekonnen, Marc Nicholas Fiddle², Andualem Ayele, Birbiraw Deresse, **Solomon Bililign**, Melese Ayelign, Kassahun Ture and Eyale Biabile, “Assessment of Air Pollutant concentrations near major roads in Addis Ababa Ethiopia” Submitted to American geophysical Union Annual Meeting Dec. 2025 <https://agu.confex.com/agu/agu25/meetingapp.cgi/Paper/1909242>
2. Haley Royer, Vivian Campbell, Cade Christensen, Megan Mouton, Marc Fiddler, **Solomon Bililign**, Jason D Surratt and Barbara J Turpin “Oxidation of African Biomass Burning Emissions within Cloud Water Mimics as a Potential Source of Secondary Organic Aerosol and Brown Carbon” Submitted to American geophysical Union Annual Meeting Dec. 2025- <https://agu.confex.com/agu/agu25/meetingapp.cgi/Paper/1949655>
3. Samir Kattel, Marc Nicholas Fiddler, Chelia Thompson, **Solomon Bililign**, “Dark Chemistry, Light Pollution: NO₃ Reactions and SOA Yields from Aromatics’ Submitted to American geophysical Union Annual Meeting Dec. 2025- <https://agu.confex.com/agu/agu25/meetingapp.cgi/Paper/1891994>
4. Chelia Thompson, Samir Kattel, Marc Nicholas Fiddler, **Solomon Bililign**, “Investigating Light Absorption of Brown Carbon Aerosols Derived from African Biomass Fuels” Submitted to American geophysical Union Annual Meeting Dec. 2025- <https://agu.confex.com/agu/agu25/meetingapp.cgi/Paper/1925775>
5. Andualem Ayele, Birbiraw Deresse, Tesfaye Mamo Mekonne, Marc Fiddler, Kassahun Ture, Eyale Biabile, Jason D Surratt, Haley Royer and **Solomon Bililign**” Fine-scale variations in PM 2.5 and black carbon concentrations and chemical composition of total suspended PM in heavy traffic road intersection in Addis Ababa, Ethiopia” American geophysical Union Annual Meeting Dec. 2025- <https://agu.confex.com/agu/agu25/meetingapp.cgi/Paper/1911342>
6. **Solomon Bililign**, Fires Fueling Atmospheric Chemistry, invited speaker, Understanding the Atmosphere via Molecular Processes and Global Impacts, Gordon Research Conference, August 3-8, 2025, Newry, Maine, United States. <https://www.grc.org/atmospheric-chemistry-conference/2025/>
7. **Solomon Bililign**, Characterizing the Optical and Chemical Properties of Biomass Burning Aerosols derived from African Biomass Fuels- Implications to global climate and air quality Public Lecture- Arba Minch University Ethiopia, Nov. 14, 2024
8. Marc Nicholas Fiddler, Shree Dorestant, John Hendrick, Macie Jones and **Solomon Bililign** Assessing and Addressing Issues of Urban Heat and Air Quality in Greensboro, North Carolina, Presented AGU Fall 2024 <https://agu.confex.com/agu/agu24/meetingapp.cgi/Paper/1732702>
9. Jing Zhang, **Solomon Bililign**, Yuh-Lang Lin and Ademe Mekonnen: Improving URM Student Learning Outcomes in Atmospheric Sciences Through Cohort Support, Research Training, and Service-Learning Presented AGU, Fall 2024 <https://agu.confex.com/agu/agu24/meetingapp.cgi/Paper/1616292>
10. **Solomon Bililign**, Laxmi Odari, Manish Kumar Shrivastava, Samson M Hagos, Marc Fiddler and Brian Gaudet, Investigating the Impact of Volatile Organic Compounds and Oxides of Nitrogen (NO_x) on Ground-Level Ozone and Fine particulate Matter Formation over North Carolina Triad region Presented at AGU , Fall 2024 <https://agu.confex.com/agu/agu24/meetingapp.cgi/Paper/1577620>
11. **Solomon Bililign**, Laboratory studies of biomass burning emissions from African biomass fuels. 2nd Miami Workshop on Aerosol Science and Technology Summer School in Winter January 10 to 12, 2024 https://cast.miami.edu/assets/pdf/2024-cast-summer-school-agenda_short_version_20231230.pdf

12. **Solomon Bililign**, increasing diversity in geosciences- What we are doing wrong and what is working- DOE - Keynote address -ARM/ASR User and PI Meeting, August 8, 2023
<https://asr.science.energy.gov/meetings/stm/summary/1556>
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13. **Solomon Bililign**, Low Cost Filter Collection for analysis of Chemical Composition of Atmospheric Aerosols in Africa Air sensors International Conference, Accra , Ghana Oct 17-19, 2023.
<https://asic.aqrc.ucdavis.edu/ghana-program-presentations>
14. **Solomon Bililign**, Inseparable link between Air Pollution and Climate Change- Cleaning the Air as a Strategy for Climate Mitigation, Conference: Together for Cleaner air in Ethiopia, Addis Ababa University, Dec. 18, 2023 <https://www.eat.lth.se/english/together-for-cleaner-air-in-ethiopia/program/>
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15. **Solomon Bililign** “Research in African Air Quality” colloquium at NCAT Physics Department, April 19, 2023
16. Solomon Bililign, “Laboratory studies of biomass burning emissions from African biomass fuels and research in African air quality, Seminar at MIT Atmospheric Chemistry group, April 11, 2023.
17. Solomon Bililign, “Interdisciplinary undergraduate Research Experience and Flexible Majors to Increase Diversity on Geosciences,” Presented at the Geological Society of America Meeting, Reston, VA March 2023, Geological Society of America Abstracts with Programs. Vol. 55, No. 2, 2023 doi: 10.1130/abs/2023SE-384941 <https://gsa.confex.com/gsa/2023SE/meetingapp.cgi/Paper/384941>
18. **Solomon Bililign**, Characterizing emissions from African biomass fuels: Part I -Optical properties and Radiative Impacts, Lecture at Kenyatta University, Air Quality Management Certificate program, August 15, 2023, Nairobi Kenya
19. Marc N. Fiddler, Markie’Sha James, Megan Mouton, Vaios Moschos, Abu Sayeed Md Shawon, Nevil A. Franco, Kyle Gorkowski, James E. Lee, Manvendra Dubey, Solomon Bililign, Wavelength and Particle Mass-dependent Optical Profiles of Aerosols from Burning African Biomass Submitted to *Air Quality and Carbon Cycle science of the African continent session at AMS 2024*
20. Janica Gordon, Kelsey Bilsback, Marc Fiddler, Vaios Moschos, Gizaw Mengistu Tsidu, Jeffrey R Pierce, Solomon Bililign, Investigating Air Quality in Palapye, Botswana using GEOS-Chem and Low-Cost Sensors, *presented at AGU, 2023 Fall meeting, and Air Quality and Carbon Cycle science of the African continent session at AMS 2024*
21. Markie’Sha James, Abu Sayeed Md Shawon, Nevil Franco, James Edward Lee, Kyle Gorkowski, Manvendra Krishna Dubey, **Solomon Bililign**, Emissions characterization of smoldering combustion of African biomass fuels using a High-Resolution Mass Spectrometry (SP-AMS). *Submitted to AGU, 2023 Fall meeting*
22. Marc N. Fiddler, Markie’Sha James, Abu Sayeed Md Shawon, Nevil A. Franco, Kyle Gorkowski, James E. Lee, Manvendra Dubey, **Solomon Bililign**, Particle Mass-dependent Optical Profiles of African Biomass Burning Emissions during the ACACIA Study at LANL, *submitted to AGU, 2023 Fall meeting*
23. Cade Christensen, Vaios Moschos, Megan Mouton, Markiesha James, Marc Fiddler, **Solomon Bililign**, Barbara J. Turpin, and Jason D. Surratt, “*Chemical Characterization of Water-Soluble Organic Gases from Combustion of African Biomass in Cloud Water Mimics as Precursors to Secondary Organic Aerosol*” Submitted to the American

Association of Aerosol Research conference, Portland OR, 2023

24. V. Moschos C. Christensen, M.N. Fiddler, B.J. Turpin, **S. Bililign** and J.D. Surratt, “*Unraveling the Link Between Real-Time Light-Absorption Properties and Offline Molecular Composition of Brown Carbon Aerosol*” Submitted to the American Association of Aerosol Research conference, Portland OR, 2023
https://aaarabstracts.com/2023/view_abstract.php?pid=314
25. Nevil A. Franco, Abu Sayeed Md Shawon, Megan Mouton, Vaios Moschos, Marc N. Fiddler, **Solomon Bililign**, Manvendra Dubey, Katherine Benedict, Kyle Gorkowski, “*Smoke Impacts on Atmospheric Processing: An Optical Analysis of Broadband Offline and Online Instruments on Geographically Diverse Biofuels*” Submitted to the American Association of Aerosol Research conference, Portland OR, 2023.
26. Megan Mouton, Vaios Moschos, Marc N. Fiddler, Kyle Gorkowski, Abu Sayeed Md Shawon, Nevil A. Franco, Katherine Benedict, Barbara J. Turpin, Jason D. Surratt, Manvendra Dubey, and **Solomon Bililign**, “*Initial findings of the African Combustion Aerosol Collaborative Intercomparison Analysis (ACACIA) Pilot Project*” Submitted to the American Association of Aerosol Research conference, Portland OR, 2023,
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27. V. Moschos, C. Christensen, M. N. Fiddler, B. J. Turpin, S. Bililign, J. D. Surratt, “Quantifying the light-absorption properties and molecular composition of brown carbon aerosol from African biomass combustion,” *Presented at EAC 2023, European Aerosol Science Conference 2023 – Malaga, Spain, and Gordon Research Conference, 2023.* <https://www.dfmf.uned.es/EAC2023/index.php?page=program>
28. **S. Bililign, Marc N. Fiddler, Janica Gordon, Vaios Moschos and Gizaw Mengistu Tsidu** “*Low-Cost Filter Collection for analysis of Chemical composition of atmospheric aerosols in Africa, To be Presented at the [Air Sensors International Community \(ASIC\), Ghana Conference](#) hosted in Accra. October 17-19, 2023*”
29. Solomon Bililign, “Laboratory studies of biomass burning emissions from African biomass fuels and research in African air quality, Seminar at MIT Atmospheric Chemistry group, April 11, 2023,
30. Solomon Bililign, “Interdisciplinary undergraduate Research Experience and Flexible Majors to Increase Diversity on Geosciences,” Presented at the Geological Society of America Meeting, Reston, VA March 2023, Geological Society of America Abstracts with Programs. Vol. 55, No. 2, 2023 doi: 10.1130/abs/2023SE-384941
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31. Solomon Bililign, “Comparisons of laboratory and field studies of chemical and optical properties of emissions from African Biomass Fuels” Presented at the Follow up workshop on a pilot design for air quality in Africa, Kigali, Rwanda, Jan 2023-
<https://cpaess.ucar.edu/sites/default/files/2023-01/kigali-workshop-agenda-final-1-9-23.pdf>
32. Solomon Bililign, “Inseparable Link between Air pollution and Climate Change” APS March meeting, Las Vegas, Nevada
<https://meetings.aps.org/Meeting/MAR23/Session/B65.9>
33. Solomon Bililign, “Laboratory Studies of Optical and Chemical properties of PM

Emissions from African Biomass Fuels” Seminar at NOAA Chemical Sciences Laboratory, Nov. 2022, <https://csl.noaa.gov/seminars/2022/Bililign.html>

34. Vernon Morris, Martin Jimenez-Navarro, Janica Gordon, Wogayehu Legese, Marc Nicholas Fiddler, Tshepho Manyothwane, Bosa Mphoeng, , Bisrat Kifle, Gizaw Mengistu Tsidu and **Solomon Bililign**, “ Characterization of Wintertime Particulate Collected in Palpaye, Botswana.” AGU, 2022, Chicago, IL.
<https://agu.confex.com/agu/fm22/meetingapp.cgi/Paper/1181244>
35. Solomon Bililign, Megan Mouton, Kotiba Malek, Markiesha James, Marc Fiddler, Akua Asa Awaku, “Cloud Condensation Nuclei Activity and Hygroscopicity of Fresh Biomass Burning Particles as a Function of Burning Conditions” MedGU-22, Presented in Marrakesh, Morocco <https://www.performer2022.medgu.org/author>
36. Megan Mouton, Vaios Moschos, Marc N. Fiddler, Barbara J. Turpin, Jason D. Surratt, and **Solomon Bililign**, “The Optical Properties of African Biomass Fuel-derived Carbonaceous Aerosol Emissions under Different Relative Humidity and Aging Conditions”, AGU 2022, Chicago IL. <https://agu.confex.com/agu/fm22/meetingapp.cgi/Paper/1091209>
37. Vaios Moschos, Cade Christensen, Megan Mouton, Marc N. Fiddler, Markie’Sha James, Barbara J. Turpin, **Solomon Bililign**, and Jason D. Surratt, “Molecular Composition of Brown Carbon Aerosol from the Combustion of African Solid Fuels.” AGU 2022, Chicago IL. <https://agu.confex.com/agu/fm22/meetingapp.cgi/Paper/1063587>
38. Markie’Sha James, Vaios Moschos, Megan Mouton, Marc Fiddler, Jason D Surratt and **Solomon Bililign**, “Real-Time Chemical Characterization of Primary and Aged Organic Aerosols from African Biomass Burning” AGU 2022, Chicago IL.
<https://agu.confex.com/agu/fm22/meetingapp.cgi/Paper/1079120>
39. Janica Gordon, Marc Nicholas Fiddler, Vaios Moschos, Tshepho Manyothwane, Bosa Mphoeng, Wogayehu Legese, Martin Jimenez-Navarro, Bisrat Kifle, Gizaw Mengistu Tsidu and **Solomon Bililign** “Field Measurements of some Criterion Pollutants using Filter Collection in Botswana, Africa” AGU 2022, Chicago, IL.
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109. Fiddler, Marc N.; Green, Jaime R.; **Bililign, Solomon**; McDuffie, E.; Fibiger, D.; Brown, S.S.; Jaeglé, L.; Weinheimer, A.; Thornton, J.A.; Campos, T.; Shah, V.; Lopez-Hilfiker, F. D.; Lee, B. H.; Haskins, J.; Sparks, T.; Ebben, C.; Wooldridge, P.J.; Cohen, R.C.; Veres, P.; Dibb, J.; Schroder, J.; Campuzano-Jost, P.; Day, D.A.; Jiménez, J.L.; Sullivan, A.; Guo, H.; Weber, R.; Leen, J. Brian; DiGangi, J.; Wolfe, G.M. Validation of point source emissions of SO₂ using aircraft data. *American Geophysical Union Fall Meeting*, San Francisco, California, **December 14-18, 2015**.
<https://agu.confex.com/agu/fm15/meetingapp.cgi/Paper/67092>
110. Solomon Bililign, Keith Schimmel, Yuh Lang Lin, Amy Germuth, Undergraduate Research Experiences in Geosciences for Physical Science and Engineering Students. *American Geophysical Union Fall Meeting*, San Francisco, California, **December 14-18, 2015**. <https://agu.confex.com/agu/fm15/meetingapp.cgi/Paper/63731>
111. Fibiger, D.; McDuffie, E.; Dube, W. P.; Veres, P. R.; Lopez-Hilfiker, Felipe D.; Lee, B. H.; Green, J. R.; Fiddler, M. N.; Ebben, C.; Sparks, T.; Weinheimer, A.; Montzka, D. D.; Campos, T.; Cohen, R. C.; **Bililign, S.**; Holloway, J. S.; Thornton, J. A.; Brown, S. S. Nighttime Nox chemistry in coal-fired power plant plumes. *American Geophysical Union Fall Meeting*, San Francisco, California, **December 14-18, 2015**, A41K-0226. <https://agu.confex.com/agu/fm15/meetingapp.cgi/Paper/76809>
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114. **Bililign, Solomon**; Fiddler, Marc N.; Smith, Damon; Singh, Sujeeta. Measuring aerosol scattering and absorption – Limitations of the extinction-minus-scattering method. *Cavity Enhanced Spectroscopy Meeting*, Boulder, Colorado, **June 15-18, 2015**. <https://csl.noaa.gov/events/ces2015/presentations/>
115. Auden, Mark; Assefa, Zerihun; Crawford, Carlos; **Bililign, Solomon**; Fiddler, Marc. Emission studies of CaMoO₄: 50% W hosts used for CH₃CN detection. *STEM Research and Career Symposium*, Emory University, Atlanta, Georgia, **March 25-27, 2015**.
116. **Bililign, S.**; Singh, S.; Fiddler, M. N.; Smith, D. Scattering and Absorption of E&M radiation by small particles-applications to study impact of biomass aerosols on climate. *Bulletin of the American Physical Society*, San Antonio, Texas, **March 2-6, 2015**, 60(1). <https://meetings.aps.org/Meeting/MAR15/Session/D33.1>
117. Smith, Damon; Singh, S.; Fiddler, Marc N.; Isabel D Colon-Bernal **Bililign, Solomon**. Measuring optical properties of soot from biomass burning using cavity ring-down spectroscopy and integrating nephelometry. *American Geophysical Union Fall Meeting*, San Francisco, California, **December 14-18, 2014**. <https://agu.confex.com/agu/fm14/webprogram/Paper7493.html>
118. Schimmel, K., **Solomon Bililign**, Successful Model for Increasing Diversity and Capacity in Geosciences Through a NOAA Cooperative Science Center, GSA Annual Meeting, Baltimore, MD, **November 2015**. <https://gsa.confex.com/gsa/2015AM/meetingapp.cgi/Paper/261538>
119. **Solomon Bililign**, Developing Research Collaboration and Sharing Research Instrumentation. QEM workshop, Baltimore, MD, **November 2015**.
120. **Bililign, Solomon**; Smith, Damon; Singh, Sujeeta; Fiddler, Marc N. Measuring the optical properties of soot from biomass burning using cavity ring-down spectroscopy and integrating nephelometry. *American Geophysical Union Fall Meeting*, San Francisco, California, **December 15-19, 2014**. <https://agu.confex.com/agu/fm14/meetingapp.cgi/Paper/7493>
121. **Solomon Bililign**, Schimmel, Keith, Lin, Yuh-Lang; Germuth, Amy. Interdisciplinary Undergraduate Research Experiences in Geosciences for Physical Science and Engineering Students. *American Geophysical Union Fall Meeting*, San Francisco, California, **December 15-19, 2014**. (poster) 26

122. Singh, Sujeeta; Smith, Damon; Vincent, Marcus; Stigger, Chanelle; Fiddler, Marc N.; **Solomon Bililign**, Measurement of the optical properties of biomass burning aerosols using ring-down spectroscopy and nephelometry. National Academies' Committee on Review of Army Research Laboratory (ARL) Programs in Support of Historically Black Colleges and Universities and Minority Institutions (HBCUs/Mis), Greensboro, North Carolina, **February 24, 2014**. (poster)
123. **Solomon Bililign** and James Sherman. Impacts of Biomass Burning Organic Acids, and Aerosols on Climate over the African Continent. The 14th National Conference and Global Forum on Science, Policy, and the Environment: *Building Climate Solutions*, Washington, DC, **January 28-30, 2014**. (poster)
124. Singh, Sujeeta; Smith, Damon; Fiddler, Marc N.; **Bililign, Solomon**. Measuring aerosol scattering and absorption – Limitations of the extinction-minus-scattering method. *American Association for Aerosol Research 33rd Annual Conference*, Orlando, Florida, **October 20-24, 2014**.
<http://aarabstracts.com/2014/viewabstract.php?pid=303>
125. Miner, Krislyn; Crawford, Carlos; Fiddler, Marc N.; **Bililign, Solomon**; Assefa, Zerihun. Synthesis of inorganic complexes for volatile organic compound (VOC) detection. *NCA&T Undergraduate Research Symposium*, Greensboro, North Carolina, **April 11, 2014**.
126. Vincent, Marcus; Stigger, Chanelle; **Singh, Sujeeta**; Smith, Damon; Fiddler, Marc N.; **Bililign, Solomon**. Differentiating absorption and scattering from biomass burning aerosols using the extinction-minus-scattering method. *Central North Carolina American Chemical Society 14th Annual Poster and Vendor Night*, Greensboro, North Carolina, **April 1, 2014**.
127. Singh, Sujeeta; Smith, Damon; Vincent, Marcus; Stigger, Chanelle; Fiddler, Marc N.; **Bililign, Solomon**. Measurement of the optical properties of biomass burning aerosols using ring-down spectroscopy and nephelometry. *Central North Carolina American Chemical Society 14th Annual Poster and Vendor Night*, Greensboro, North Carolina, **April 1, 2014**.
128. **Bililign, Solomon**; Singh, Sujeeta; Smith, Damon; Fiddler, Marc N. Calibration of cavity ring-down spectrometry, integrating nephelometry, and condensation particle counting for distinguishing aerosol scattering/absorption properties. *Bulletin of the American Physical Society*, Denver, Colorado, **March 3-7, 2014**, abstract ID BAPS.2014.MAR.Q30.6 (oral presentation by S. Bililign)
<https://meetings.aps.org/Meeting/MAR14/PersonIndex/2696>
129. Roberts, James; **Bililign, Solomon**; Young, Paul J.; Burling, Ian R.; **Fiddler, Marc N.**; Yokelson, Robert J.; Warneke, Carsten; VandenBoer, Trevor C.; Veres, Patrick; de Gouw, Joost; Barth, Mary C. The potential air quality impacts of fires: Isocyanic acid (HNCO). *International Smoke Symposium*, University of Maryland, **October 21-24, 2013**. (oral presentation by J. Roberts)
130. Gulilat Tefera Diro, Ademe Mekonne and **Solomon Bililign**. An investigation of the medium range variability of rainfall and the associated mechanisms over the Greater Horn of Africa. The Africa Climate Conference, Arusha, Tanzania, **October 14-18,**

2013. (oral)

131. **Solomon Bililign** and James Sherman. Impacts of Biomass Burning Organic Acids, and Aerosols on Climate over the African Continent. The Africa Climate Conference, Arusha, Tanzania, **October 14-18, 2013**. (oral)
132. **Solomon Bililign**. The need for interdisciplinary research and education for sustainable human development to deal with global challenges. 7th International Conference on African Development (ICAD), Western Michigan University, Kalamazoo, Michigan, **August 2013**. (Keynote presentation) <https://wmich.edu/africacenter/bililign-solomon>
133. **Solomon Bililign** and Marc N. Fiddler, Research, and educational activities in atmospheric sciences at NCA&T and initial results in characterizing the optical properties of particles. Appalachian State University, Boone, North Carolina, **February 1, 2013**. (Invited oral)
134. Tedla, Getachew; Singh, Sujeeta; Fiddler, Marc N.; **Bililign, Solomon**. Measurement of aerosol optical properties by integrating cavity ring down spectroscopy and nephelometry, *American Physical Society*, Baltimore, Maryland, **March 18-22, 2013**, IDBAPS.2013.MAR.T16.2. (oral) <https://meetings.aps.org/Meeting/MAR13/Session/T16.2>
135. **Bililign, Solomon**; Fiddler, Marc N.; Singh, Sujeeta. Use of cavity ring down spectroscopy to characterize organic acids and aerosols emitted in biomass burning. *Bulletin of the American Physical Society*, Boston, Massachusetts, **February 27-March 2, 2012**, vol. 57(1), Y1.00014. (oral presentation by S. Bililign) <https://meetings.aps.org/Meeting/MAR12/Session/Y1.14>
136. Sujeeta Singh, Getachew Tedla, Marc N. Fiddler and **Solomon Bililign**, "Measurement of the optical properties of polystyrene spheres using cavity ring-down spectroscopy and nephelometry", Southeastern Regional Meeting of the American Chemical Society, Raleigh, North Carolina, **November 14-17, 2012**. (oral)
137. Schimmel, Keith A.; Porter, Michael J.; **Solomon Bililign**; Makonnen, Ademe; Lin, Yuh- Lang; Rastigeyev, Yevgeniy; Zhang, Jing; Whitehead, Kendra and Young, Candice. "Climate misconception remediation with 3-D visualization", GSA Annual Meeting, Charlotte, North Carolina, **November 2012**. (poster) <https://gsa.confex.com/gsa/2012AM/webprogram/Paper208293.html>
138. **Solomon Bililign** "The Need for Interdisciplinary Research and Education for Sustainable STEM Workforce Development and to Address Global Challenges" Poster at the Bridging the Gap in STEM conference. McKimmon Conference & Training Center Raleigh, NC, **October 23-24, 2012**
139. Fiddler, Marc N.; Singh, Sujeeta; Brown, Steven S.; **Solomon Bililign**, "Determining the photolysis rate constant of peracetic acid by measuring the absorption cross sections of O- H stretching overtones using cavity ring-down spectroscopy". 243rd American Chemical Society National Meeting & Exposition, San Diego, California, **March 25-29, 2012**. (poster) <https://www.morressier.com/article/determining-photolysis-rate-constant-peracetic-acid-measuring-absorption-cross-sections-oh-stretching-overtones-using-cavity-ringdown-spectroscopy/5fc62e239e0a135cbec75389?>
140. Marc N. Fiddler, Sujeeta Singh, Steven S. Brown, and **Solomon Bililign**, "Determining

the photolysis rate constant of peracetic acid by measuring the absorption cross sections of O-H stretching overtones using cavity ring-down spectroscopy”, The Pittsburgh Conference, Orlando, Florida, **March 11-15, 2012**, 150-1. (oral)

141. **Solomon Bililign**. “*Study of Vibrational Overtone Induced Dissociation of Organic Acids from Biomass Burning- Using Cavity Ring Down Spectroscopic Techniques*”, Norman Hascoe Distinguished Lecture Series, University of Connecticut, **February 21, 2012**. (Invited oral)
142. Fiddler, Marc N.; Singh, Sujeeta; Brown, Steven S.; **Bililign, Solomon**. Measuring the absorption cross section of the fifth O-H stretching overtone of peracetic acid using cavity ring-down spectroscopy. *4th Bi-annual Chemical Sciences Symposium*, Greensboro, North Carolina, **October 21, 2011**.
143. **Solomon Bililign**, Study of Climate Forcing Caused by Aerosols and Chemical Products of Biomass Burning- Laboratory Spectroscopic Studies. Seminar given at Bahir Dar University, Ethiopia and Mekelle University, Ethiopia, **July 2011**
144. **Solomon Bililign**, Research, and education for sustainable development: The need for interdisciplinary approach to address problems of global significance. Seminar given at Bahir Dar University, Ethiopia and Mekelle University, Ethiopia, **July 2011**
145. Schimmel, K., Watlington, S., Worrell, T., Jost, M., Bohn, J., **Solomon Bililign**, Enhancing STEM Education in Guilford County Schools through Teacher Research Experiences. The Naval STEM Forum, Alexandria, VA, **June 15-16, 2011**.
146. **Solomon Bililign**, Bohn, J., Schimmel, K., NOAA ISET Cooperative Science Center: An Innovative University/Federal Agency STEM Education Partnership. The Naval STEM Forum, Alexandria, VA, **June 15-16, 2011**.
147. Bohn, J., Schimmel, K., **Solomon Bililign**, ISETCSC’s Outreach to Increase Participation and Diversity of STEM Pipeline. The Naval STEM Forum, Alexandria, VA, **June 15-16, 2011**.
148. Anthony Cochran, James Roberts, Patrick Veres and **Solomon Bililign**, First Measurement of the Henry’s Law Solubility Coefficient of Isocyanic Acid (HNCO) in Water and its Potential Health Effects. IEEE International Geosciences and Remote Sensing Symposium, Vancouver, Canada, **July 24-29, 2011**. (poster)
149. Fiddler, Marc N.; Singh, Sujeeta; Brown, Steven S.; **Bililign, Solomon**. Measuring the absorption cross section of the fifth O-H stretching overtone of peracetic acid using cavity ring-down spectroscopy. *125th NC ACS Sectional Conference*, Raleigh, North Carolina, **September 30, 2011**.
150. Singh, Sujeeta; Fiddler, Marc N.; Brown, Steven S.; **Bililign, Solomon**. Measuring the absorption cross sections of O-H stretching overtones of peracetic acid using cavity ring-down spectroscopy. *Joint Annual Conference of NSBP & NSHP*, Austin, Texas, **September 21-24, 2011**. (Oral presentation by S. Singh)
151. Boskovic, Stefan; Fiddler, Marc N.; **Bililign, Solomon**. Determining the absorption coefficient of the fourth O-H stretching overtone of peracetic acid using cavity ring-down spectroscopy. *Research in the Capitol*, Raleigh, North Carolina, **April 13, 2011**.
152. Fiddler, Marc N.; Boskovic, Stefan; **Bililign, Solomon**. Determining the absorption coefficient of the fourth O-H stretching overtone of peracetic acid using cavity ring-down spectroscopy. *NOAA Educational Partnership Program Cooperative Science Center Spring Meeting*, Washington, D.C., **March 24, 2011**.

153. Fiddler, Marc N.; Boskovic, Stefan; **Bililign, Solomon**. Measurement of the absorption coefficient of the fourth O-H overtone of peracetic acid using cavity ring-down spectroscopy. *NOAA-ISETCSC Day*, Greensboro, North Carolina, **February 11, 2011**.
154. Fiddler, Marc N.; Boskovic, Stefan; **Bililign, Solomon**. Characterizing the fourth O-H overtone of peracetic acid using cavity ring-down spectroscopy. *The 25th Annual Ronald E. McNair Symposium*, Greensboro, North Carolina, **January 26-28, 2011**. (Awarded Certificate of Merit)
155. Boskovic, Stefan; Fiddler, Marc N.; **Bililign, Solomon**. Characterizing the fourth O-H overtone of peracetic acid using cavity ring-down spectroscopy. *State of North Carolina Undergraduate Research and Creativity Symposium*, Raleigh, North Carolina, **November 20, 2010**.
156. Boskovic, Stefan; Fiddler, Marc N.; **Bililign, Solomon**. Characterizing the fourth O-H overtone of peracetic acid using cavity ring-down spectroscopy. *ISETCSC NOAA Advisory Committee Meeting*, California State University-Fresno, California, **November 1-2, 2010**.
157. **Bililign, Solomon**; Begashaw, Israel; Fiddler, Marc N. Measurement of the fourth O-H overtone absorption cross section in acetic acid using cavity ring-down spectroscopy. *77th Annual Meeting of the Southeastern Section of the American Physical Society*, Baton Rouge, Louisiana, **October 20-23, 2010**, 55(10), GC-2. (Oral presentation by S. Bililign) <https://meetings.aps.org/Meeting/SES10/Session/GC.2>
158. Fiddler, Marc N.; **Bililign, Solomon**. Selection of an optimal reagent ion for the chemical ionization of atmospherically relevant carboxylic acids. *Triangle Area Mass Spectrometry Discussion Group Vendor Night*, Chapel Hill, North Carolina, **October 13, 2010**.
159. Cochran, Anthony K.; Dereje, G.; Fiddler, Marc; Bekele, M.; **Bililign, Solomon**. Development of theoretical and experimental methods for comparing collision and reaction rates of ion-molecule clustering effects of organic acids. *Proceedings of the 58th ASMS Conference on Mass Spectrometry and Allied Topics*, Salt Lake City, Utah, **May 23-27, 2010**. https://www.asms.org/docs/default-source/Past-Annual-Conference-Programs/58th-asms-final-program.pdf?sfvrsn=c85d76c3_0
160. Fiddler, Marc N.; **Bililign, Solomon**. Selection of an optimal reagent ion for the chemical ionization of atmospherically relevant carboxylic acids. *Proceedings of the 58th ASMS Conference on Mass Spectrometry and Allied Topics*, Salt Lake City, Utah, **May 23-27, 2010**. https://www.asms.org/docs/default-source/Past-Annual-Conference-Programs/58th-asms-final-program.pdf?sfvrsn=c85d76c3_0
161. Fiddler, Marc N.; Cochran, Anthony K.; **Bililign, Solomon**. Characterization of oxidized volatile organic compounds using proton transfer reaction time-of-flight (PTR-ToF) mass spectrometry and ion/molecule reactions. *ISET Day*, Greensboro, North Carolina, **February 28, 2010**.
162. Andrew Nyblade, Samantha Hanson, Solomon Bililign, Developing a pipeline of underrepresented minority students for the geosciences through Africa-array. Abstract submitted to 2010 GSA Denver Annual Meeting, **31 October –3 November 2010**. <https://gsa.confex.com/gsa/2010AM/webprogram/Paper177118.html>
163. **Solomon Bililign**, Research and Education in Geosciences – The Need for an All-

Inclusive Interdisciplinary Approach to Address Problems of Global Significance. University of Iowa, Physics Department, Iowa, **September 24, 2010.** (Invited lecture)

164. Begashaw, Israel; Collingwood, Michael; Fiddler, Marc; **Bililign, Solomon.** Absorption cross section for the ν_{OH} stretch of acetic acid and peracetic acid using cavity ring-down spectroscopy. *American Geophysical Union Fall Meeting*, San Francisco, California, **December 2009.**
<https://abstractsearch.agu.org/meetings/2009/FM/A21C-0255.html>
165. Fiddler, Marc N.; Cochran, Anthony K.; **Bililign, Solomon.** Characterization of oxidized volatile organic compounds using proton transfer reaction time-of-flight (PTR-ToF) mass spectrometry and ion/molecule reactions. *NOAA EPP Education and Science Forum*, Washington, D.C., **November 12-14, 2009.**
166. Cochran, Anthony K.; Fiddler, Marc N.; Melvin, Charles; **Bililign, Solomon.** Development of negative ion proton transfer reaction time-of-flight mass spectrometry (NI- PTR TOF MS) for the measurement of gas phase acids in the troposphere. *NOAA EPP Education and Science Forum*, Washington, D.C., **November 12-14, 2009.** (Oral presentation by A. Cochran)
167. Fiddler, Marc N. and **Solomon Bililign**, Atmospheric carboxylic acids: Sources, sinks, and measurement; highlighting the activities of Thrust Area I. ISET Student Meeting, Greensboro, North Carolina, **September 17, 2009.** (oral)
168. Israel Begashaw, Michael Collingswood, **Solomon Bililign**, Measuring the ν_{OH} stretch absorption cross section of acetic acid and peracetic acid by cavity ring-down spectroscopy.
Poster Presentation: P1.41 NOAA-EPP Fifth Education and Science Forum, Howard University, **November 12, 2009.**
169. **HANSEN, Samantha E.**, NYBLADE, Andrew A., **Solomon BILILIGN.** Developing a pipeline of underrepresented minority students for the geosciences through Africaarray. Presented at 2009 Portland GSA Annual Meeting, **October 18-21, 2009.**
<https://gsa.confex.com/gsa/2009AM/webprogram/Paper162751.html>
170. Cochran, A K; Begashaw, I; Jessamy, C, **Solomon Bililign**, Development of Negative Ion Proton Transfer Reaction Time-of-Flight Mass Spectrometry (NI-PTR TOFMS) for the Measurement of Gas Phase Acids in the Troposphere. *Eos Trans. AGU*, **2008**, 89(53), Fall Meet. Supple; A21B-0157 <https://abstractsearch.agu.org/meetings/2008/FM/A21B-0157.html>
171. **Solomon Bililign**, *Far Wing Scattering Spectroscopy to Study chemical reaction and non- reactive energy transfer processes.* Chemistry Department Colloquium, **Oct 4, 2007.**
172. **Solomon Bililign**, *Understanding Climate Change- Capstone Interdisciplinary Problem of the Century.* 3rd National Conference on Environmental Science and Technology, **Sept. 12., 2007**
173. **Solomon Bililign**, *Towards an Integrated Approach to the Earth System Study.* Presentation at the AfricaArray workshop on the campus of NCA&T, **Feb 13, 2008.**
174. **Solomon Bililign**, *Development of Negative Ion-Proton Transfer Reaction Mass Spectrometry (NI-PTRMS) for Gas-Phase Measurement of Acids in the Atmosphere.* Poster presentation at the National Society of Black Physicists and National Society of

Hispanic Physicist, Feb 21, 2008, Washington DC, and Chemical Sciences Symposium, NCA&T, Feb. 28, 2008. Oral presentation at the EBAL 2008 (Environmental and Biological Applications of Lasers) Cairo, Egypt, Jan 2008.

175. **Solomon Bililign**, *Spectroscopic Techniques for Atmospheric Applications*. Invited talk at the National Society of Black Physicists and National Society of Hispanic Physicist, Feb 21, 2008, Washington DC
176. Solomon Bililign, “NOAA Interdisciplinary Scientific Environmental Technology Cooperative Science Center” 75th Annual Meeting of SESAPS, Raleigh, NC. (Invited) <https://meetings.aps.org/Meeting/SES08/Session/EB.1>
177. **Solomon Bililign**, *Spectroscopic techniques to study chemical reaction and non-reactive energy transfer processes and environmental applications*. Invited lecture at the EBAL 2008 (Environmental and Biological Applications of Lasers) Cairo, Egypt, Jan 2008.
178. **Solomon Bililign**, *Scattering State Spectroscopy as a probe of Chemical Reaction Dynamics and Non-Radiative Energy Transfer: Li (np) + M System (M = H₂, N₂, CH₄, (n = 2,3,4)*. Presented at the NATO Advanced Study Institute, International School of Atomic and Molecular Spectroscopy, 22nd Course: New developments in Optics and Related Fields Ettore Majorana Center for Scientific Culture Erice, Sicily, ITALY: June 6-21, 2005.
179. **Solomon Bililign**, *Scientific Revolutions and Social Change*. FUTURES Retreat, NCA&T, April 2005, Aggie Report, 2005
180. **Solomon Bililign**, *The social, ethical, and educational challenges of nanotechnology*. Cultural Studies Symposium, NCA&T State University, March 19, 2005
181. **Solomon Bililign**, *Collisional Energy Transfer in Li (np, n = 2,4) + N₂ and Li(4p) + CH₄, C₂H₄, C₂H₆, C₃H₈ Interactions*. 71st Annual Southeastern Section meeting of the American Physical Society, Oak Ridge, TN, November 2004; Bulletin of the American Physical Society, V. 49, No. 7, 2004
182. **Solomon Bililign**, *Density Functional Theory Studies of Transition Metal-Ion-Benzene Sandwich Complexes*. 71st Annual Southeastern Section meeting of the American Physical Society, Oak Ridge, TN, November 2004; Bulletin of the American Physical Society, V. 49, No. 7, 2004
183. **Solomon Bililign**, *Physical and Chemical quenching of Li(3p) by several gases*. Colloquium at Morgan State University, Department of Chemistry and Physics, March 2004
184. **Solomon Bililign**, *Nonradiative Energy Transfer in Li (4p) + (Ar, H₂, CH₄) Collisions*, Presented at the National Conference of Black Physicist, Washington DC, Feb. 2004
185. **Solomon Bililign**, Brian Hattaway, Vincent Ledentu and Gwang Hi Jeung, *Energy Transfer in Li(4p) + (Ar, H₂, CH₄) Collisions*. Presented at the SESAPS meeting, Wilmington, NC Nov. 2003. <https://flux.aps.org/meetings/YR03/SES03/baps/abs/S160.html#SGC.001>
186. Brian Hattaway **and Solomon Bililign**, *Reactive and non-reactive quenching of Li(3p)*

- by CH_4 , C_2H_4 , C_2H_6 , C_3H_8 . Presented at the SESAPS meeting, Wilmington, NC Nov. 2003. <https://flux.aps.org/meetings/YR03/SES03/baps/abs/S160.html#SGC.001>
187. **Solomon Bililign**, *Reactive and non-reactive quenching of Li(np) by Ar, H₂, CH₄, C₂H₆, C₃H₈*, Colloquium, at Laboratoire de Chimie Théorique et Modélisation Moléculaire Université de Provence - Marseille Cedex 20, 2003.
188. **Solomon Bililign**, *Chemical Physics Research at NCA&T: Reactive and non-reactive quenching of Li(np) by several Gases*. Colloquium at the Department of Physics, Addis Ababa University, Ethiopia, July 2003
189. **Solomon Bililign**, *Research and Education in Chemical Physics at A&T*. talk given at the annual meeting of the National Society of Black Physicists, Atlanta, GA, February 14, 2003, at the National Science Foundation, Division of Chemistry, December 11, 2002, at the NC AAPT meeting March 22, 2003, and at the Annual Life and Physical Sciences Symposium, NC A&T Biology Dept., April 5, 2003.
190. Nayana Vaval, **Solomon Bililign**, *DFT Studies of the Structure of Fe⁺ R_n (R = Ar, Xe, n = 1 – 6) Clusters*. Presented at the American Physical Society Division of Atomic, Molecular and Optical Physics Meeting, May 29-June 1, 2002, Williamsburg, VA. <https://flux.aps.org/meetings/YR02/DAMOP02/baps/abs/S50.html#SB4.010>
191. Brian Hattaway, Barker Barker, **Solomon Bililign**, *Red-Wing Scattering Studies of Li(4p) + Ar, H₂ and CH₄ Collisions*. Presented at the American Physical Society Division of Atomic, Molecular and Optical Physics Meeting, May 29-June 1, 2002, Williamsburg, VA. <https://flux.aps.org/meetings/YR02/DAMOP02/baps/abs/S380.html#SP6.073>
192. **Solomon Bililign**, *Energy Transfer in Li(3p) + Ar, H₂ and CH₄ Collisions: A comparative study*. Presented at the American Physical Society Division of Atomic, Molecular and Optical Physics Meeting, May 29-June 1, 2002, Williamsburg, VA. <https://flux.aps.org/meetings/YR02/DAMOP02/baps/abs/S380.html#SP6.073>
193. **Solomon Bililign**, *Energy Transfer and Reactions in Li*(3p) + H₂ Collisions*. A seminar presented at the Department of Physics, East Tennessee State University, Johnson City, TN, Oct. 30, 2000
194. **Solomon Bililign**, Brian Hattaway, Gwang-Hi Jeung, *Scattering State Spectroscopy of the reaction Li*(3p) + H₂ --- LiH (v'' = 1, 2, J'') + H*. APS April 2001 meeting, Washington D.C., April 28, 2001. <https://flux.aps.org/meetings/YR01/APR01/abs/S1500.html#SK20.050>
195. **Solomon Bililign**, *From Diatomic Molecules to Clusters and Beyond: Theory and Experiment*. A seminar presented at the Department of Computer Science, Duke University, Durham, NC, Oct. 19, 2000.
196. **Solomon Bililign**, *Quenching of Li(3p) by H₂ and Ar*. Presented at the LS-NCAMP Research Conference, Winston Salem State University, NC, Feb. 2000.
197. **Solomon Bililign** and Tito Robinson, *Formation of LiH by Far Wing Scattering of the Li*(2p) + H₂ complex*. Presented at the 66th SESAPS meeting Nov 7-9, 1999, Chapel Hill, NC. <https://flux.aps.org/meetings/YR99/SES99/abs/S420004.html>

198. **Solomon Bililign**, *Formation and Chemistry of Nanoparticles from Gaseous Precursors by Multiphoton Ionization/Dissociation*. Presented at the Gordon Research Conference On Clusters, Nanocrystals, & Nanostructures, Connecticut College July 24 – July 29, 1999
199. **Solomon Bililign**, *Multiphoton Ionization/Dissociation Studies of Iron Reactions in Gas Phase*. Presented at the American Chemical Society Southeast Regional Meeting, Knoxville, TN, Oct. 17- 20, 1999
200. **Solomon Bililign**, C.S Feigerlie, John C. Miller, *Multiphoton Ionization/dissociation of Benzene-Fe (CO)₅ and Methanol-Fe (CO)₅ Clusters*. Presented at the APS (American Physical Society) Meeting in Atlanta GA., March 1999.
<https://flux.aps.org/meetings/YR99/CENT99/abs/S5987017.html>
201. Niel Crews, **Solomon Bililign**, *Model Potentials for Group II Metal-atom-Rare-Gas Atom Interaction*. Presented at the APS (American Physical Society) Meeting in Atlanta GA., March 1999. <https://flux.aps.org/meetings/YR99/CENT99/abs/S8199075.html>
202. **Solomon Bililign**, *Laser-induced transition metal chemistry within clusters*. Presented at the 9th International Symposium on Resonance Ionization Spectroscopy: New Directions and Applications June 21 – June 25, 1998, The University of Manchester Institute of Science and Technology.
203. **Solomon Bililign**, *Organometallic Nanochemistry in Gas-Phase Clusters*. Presented at the American Chemical Society Southeastern Regional Meeting, Nov 4-7, 1998, RTP, NC
204. **Solomon Bililign**, *Ab initio studies of the Na(3s).Ar, ²Σ Na (3p).Ar, ²Σ and Na(4p).Ar, ²Σ states*. Presented at the Second Annual NCAMP Research Conference, UNC Charlotte, April 4, 1998.
205. **Solomon Bililign**, *A New Model Potential for Excited State Metal Atom-Rare Gas Interactions*. Presented at the Second Annual Life and Physical Sciences Research Symposium, Feb 21, 1997, NCA&T.
206. **Solomon Bililign**, *Laser Induced Organometallic Chemistry Within Clusters*. Presented at the sixth Annual Consortium on Nanostructured Materials, University of Kentucky, Lexington KY, Oct. 24-26, 1997.
207. **Solomon Bililign**, *Inverse Laser Ablation: Formation and Chemistry of Nanoparticles from Gaseous Precursors*. Presented at the fourth International Conference on Laser Ablation (COLA 97), Asilomar, CA July 20-25, 1997
208. **Solomon Bililign**, *Metal ion Chemistry Initiated by Ionization/Dissociation of Organometallic Precursors*. Presented Fourth Winter Gordon Research Conference on Structures, Energetics and Dynamics of Gaseous Ions. Feb. 22-28, 1997, Ventura CA. 2. The Fifth Workshop Consortium for Nanostructured Materials, Nashville, Tennessee, Oct. 17-19, 1996. 3. Joint APS/AAPT Meeting, April 17-21, 1997, Washington D.C
209. **Solomon Bililign**, *Metal-Ion Chemistry in Clusters Initiated by Ionization/Dissociation of Organometallic Precursors*. Presented at the 17th International Symposium on Molecular Beams, Paris, France, June 2, 1997 (Invited).
210. **Solomon Bililign**, *Non-Resonant Excess Photon Detachment of H- Ions*. Presented at

the 1996 Joint Meeting of Texas Section of APS, AAPT & Zone 13 of SPS, March 15-16, 1996

211. M.S Gulley, H.C Btayant, C.M Strauss, D. J. Funk, A. Stinz, D.C. Risolve, G.A. Kyrala, W.B. Ingallis, W.A. Miller, and **Solomon Bililign**, *Excess Photon Detachment of H- Ions with 1.17 eV Photons*. Presented at the 1996 Annual Meeting of DAMOP, Ann Arbor MI. May 15-18, 1996.
<https://flux.aps.org/meetings/YR9596/BAPSDAMOP96/abs/S170003.html>
212. **Solomon Bililign**, *Excess Photon Detachment of Negative Hydrogen Ions*. Contributed paper to the 1996 QELS Conference. Anaheim, CA, June 2-7, 1996.
213. **Solomon Bililign**, *Airborne Mercury Detection by Resonant UV Laser Pumping*. Presented at Connecticut Microelectronics and Optoelectronics Symposium, Stores, Connecticut, 1996.
214. **Solomon Bililign**, *Full and Half-Collision Studies of Metal Atom Singlet –to Triplet Deactivation Induced by Rare Gas Atoms*. Presented at the Annual Meeting of the Optical Society of America and Xith Interdisciplinary Laser Science Conference. Portland, OR, Sept. 1995. Presented at the annual meeting of the National Society of Black Physicists, April 12-15, 1995, Atlanta GA.
215. **Solomon Bililign**, *Spectroscopy, Energy Transfer, and Dynamics in Metal atom- rare gas system and Metal-Hydrogen Systems*. Colloquium presented at the Departments of Physics of Clemson University (Nov. 1993) and University of North Carolina in Greensboro (April 1994)
216. **Solomon Bililign**, *Potential energy Curves of $M(Na^2p)$. $RG(^2\Pi)$ excited state and $M+$. RG ground states ($M=Li, Na$; $RG=He, Ne$* . Presented at the Annual Meeting of the Optical Society of America and the XTh Interdisciplinary Laser Science Conference, Dallas, Texas, Oct. 1994.
217. **Solomon Bililign**, *Alignment effects in the Reaction of $Na(4p) + H_2$* . Presented at the Seventh Interdisciplinary Laser Science Conference, Monterey, California, 1991.
218. **Solomon Bililign**, *Reaction Dynamics of $Na(4p) + H_2$* . Presented at the 10th International Conference on Spectral Line Shapes, Austin, Texas, 1990.

2-G. Funded proposals (as PI)

FOR LISTING OF ALL PROPOSALS SUBMITTED AND PENDING PROPOSALS SEE APPENDIX 1

Proposal title	Funding agency	Amount funded	Funding period
Ab Initio Studies of Metal-Rare Gas and Metal-Hydrogen Interaction Potentials- PI-Bililign	NSF Program 1954: Quantum Calculations	\$137,628.00	09/01/96-08/31/99
Effects of Electronic Orbital Alignment in Laser Induced Metal-H ₂ and Metal-CH ₄ : PI Bililign	NSF-CAREER	\$359,465 PLUS Supplement. \$14,000	3/1/98-02/28/02
ITR/ Computational Geometry for Structural Biology and Bioinformatics- Collaborators: UNC Chapel Hill, Stanford University, Duke University and NCAT	NSF-ITR /Duke University	\$524,874	9/15/00-8/31/05
Quenching of excited states of lithium by H ₂ ,D ₂ ,N ₂ , and alkane and alkene hydrocarbons: Kinetics and Dynamics- PI Bililign	NSF-Chemistry	\$285,738	3/1/02-2/28/05
The A&T Physics Scholars Program – An On-Track Feeder- PI Bililign	Sloan Foundation	\$180,000	4/1/02-3-31-06
Acquisition of a multi-source reflection time-of-flight mass spectrometer: PI-Bililign Co-PI's: Adenayi, Harp (NCA&T) Duffy UNCG	NSF-MRI	\$447,635	09/01/03-08/31/05
INTERNATIONAL COLLABORATION IN RESEARCH AND EDUCATION WITH ADDIS ABABA UNIVERSITY (ETHIOPIA) PI-Bililign	NSF-OISE	\$15,500.00	8/15/04-8/14/05
AfricaArray: Imaging the African Superplume, building African partnerships and enhancing diversity in the geosciences: - PI: Andy Nayblade (Penn State), Collaborators: University of the Witwatersrand, Johannesburg, NCAT, NCA&T sub award: PI-Bililign , Co-PI-Tang	NSF-OISE-PIRE	\$635,600.00	1/06-12/13
The Sloan A&T Physics Scholars Program: Preparing undergraduates for a Ph.D. in the sciences. - PI Bililign	Sloan Foundation	\$210,000.00	9/1/2005-8/31/2008
International Research in Earth, Atmospheric and Space Sciences in Ethiopia. PI-Bililign	NSF-OISE-IRES	\$149,000	1/1/07-12/31/10
NOAA Interdisciplinary Scientific	NOAA-EPP	\$12.5 Million	9/ 1/06 –8/31/11

Environmental Technology (ISET) Cooperative Research and Education Center “I-Bililign Partners: NCSU, CUNY, UNCP, University of Alaska Southeast, FISK University, University of Minnesota, California State-Fresno NCA&T Co-PI’s- Schimmel, Assefa, Tang, Adewuyi, Homaifar, Ahmidouich, Danagoulian, Ilisa, Esterline, Roop, Zhang, Kyei			
Kinetics and Thermochemistry Studies of Carboxylic and Other Acids Using Negative Ion Proton Transfer Mass Spectrometry (NI-PTRMS)-PI-Bililign	NSF-Atmospheric Chemistry	\$330,000	6/1/08-5-31-11
Collaborative Research: Track 2 – Enhancing Diversity in the Geosciences through the Africa Array (AA) Educational Alliance-PI- Bililign Co-PI- Tang, Schimmel	NSF-Geosciences	671,500	9/1/09-8/31/14
Laboratory determination of optical properties of aerosols using cavity ring down spectroscopic technique-PI- Bililign, Co-PI- Fiddler	DoD	\$575,000	5/1/11-4/30/14
Enhancing Earth System Science Education in Guilford County Schools Central Region Secondary Schools (Co-PI)- PI- Schimmel	NASA	\$408,391	5/2010-4/2012
Effective Global Climate Change Education and Research for Minorities (Co-PI) PI- Schimmel, Co-PI- Bililign, Lin et.al	NASA	\$658,903	2011-2013
REU Site: Collaborative Earth system science research- Atmospheric modeling, sensing and societal impacts: PI-Bililign Co-PI’s Keith A Schimmel, SHYAM ARAVAMUDHAN, Zerihun Assefa, William Edmonson, Manoj Kumar Jha, Yuh-Lang Lin, Liping Liu, Ademe Mekonnen, George W. Stone	NSF	\$361,390	20013-2017
GP-EXTRA: Pathways to atmospheric science through immersion in geosciences research, PI-Bililign, Co-PI: A S Denning; Manoj K Jha, Yuh-Lang Lin, Jing Zhang, Melissa A. Burt, Keith Schimmel, Ademe Mekonnen	NSF	\$456,000	August 2016-July 2019
Studies of Optical and chemical properties of Biomass Burning Aerosols, PI-Bililign, CO-PI- Fiddler	NSF	\$ 488,281	Feb 15, 2016-Jan 31-2019
IRES-International Research in Geosciences (Earth and Atmospheric Sciences) in Ethiopia, Recommended for Funding: PI-Bililign, Co-PI- James Sherman	NSF	\$249,898	July 2016-June19 2016

NSF-HBCU-UP Research Excellence: Radiative effects of Biomass Burning Aerosols: Laboratory and Field Measurements and Modelling of Climate and health impacts: PI: Bililign	NSF	\$1,060,000	9/1/19-8/31/21
Broadening Participation of Underrepresented Minority Undergraduates in International Research CO-PI-Bililign	NSF	\$95,400	9/7/18-7/20/18
Excellence in Research: Biomass burning aerosol- molecular level characterization of aging conditions on optical and chemical properties: PI Bililign	NSF	\$1,065,910 including 3 supplements)	9/1/21-8/31/24
GP-UP: Enhancing Recruitment and Retention of Underrepresented Minorities in Atmospheric Sciences at NCAT PI. J. Zhang, Co-PI's Bililign, Lin and Mekonnen	NSF	\$ 349,793	9/1/21-8/31/24
International networking, knowledge sharing and capacity building for improved air quality in Four East African Countries PI Bililign	Department of State/Columbia University	\$292,729	10/20-9/21
“Studies of optical and chemical properties of aged and fresh biomass burning absorbing aerosols for climate models.” PI: Bililign	Department of Energy	\$123,000	9/1/22-2/28/24
“The Climate Resilience Center in Piedmont Triad of North Carolina PI: Bililign	Department of Energy	\$950,000	9/1/23-8/31/26

3.DETAILS OF PROFESSIONAL EXPERIENCE – TEACHING

3-A. Summary of contributions to education: 1993-2006

Number of courses taught	Graduate: 13, Undergraduate 14
Number of new courses developed	22 (already in catalogue) 4 others
Number of online courses developed	3 (1 introductory and 2 intermediate level)
Contributions to new degree programs and concentrations	4-(physics), 4 interdisciplinary programs
Number of graduate students advised	21 (7 PhD)
Number of undergraduate students advised (research advising)	67
Number of postdoctoral fellows supervised	8

3-B. Courses taught

Undergraduate	Graduate
**Laser Electronics,	Classical Mechanics: PHYS. 600
Special Topics	Statistical Mechanics: PHYS. 630
College Physics I and II (Phys 225,226)	**Atomic of Atmos Molecules and Nanosystems PHYS 735.
General Physics I and II (Phys 241, 242)	Quantum Mechanics II and I. PHYS 620/720
Quantum Mechanics I and II (Phys 420, 422)	**Spectroscopic techniques PHYS 736
Mathematical Physics (Phys 305)	Electrodynamics PHYS 615, Phys 715
Physics Orientation (Phys 100)	Atmospheric Chemistry EES 785
Electromagnetism I and II (Phys 415,416)	**Principles of Air Quality AST 855
Atomic and molecular physics (Phys 465)	**Atmospheric Aerosols AST 856
ONLINE COURSES DEVELOPED-2020	**Interaction of radiation with Matter, Anthropogenic Pollutants EES 885
Electrodynamics I and II- Phys 415 and Phys 416	Chemical and Physical processes in the Atmosphere EES 750
College Physics 1: Phys 225	Graduate Research and Thesis: PHYS 770, PHYS 791/792
	**Spectroscopic Techniques for Atmospheric Applications- AST 885

** NEW Courses Created and taught by Bililign.

3-C. Student advising

The list of students in the attached list does not include all the students' provided scholarships from federal grants I led: For example, the NOAA Center (2006-2012) provided financial support to over 385 students, NSF Geopath program (2914-2017) provided stipends to 38 ASME majors

and the Sloan Foundation Grant (1998-2004) provided scholarships to 46 physics majors. This information can be verified by the annual reports submitted to the funding agencies.

POST DOCTORAL FELLOWS

Name	Dates	Subject
<i>Nyana Vaval</i>	2000-2001	Chemical Physics
<i>Robert Gdanitz</i>	2001-2004	Chemical Physics
<i>Alemayehu Jembere</i>	2006-2007	Geophysics
<i>Mulugeta Dugda</i>	2007-2009	Geophysics
<i>Yulia Basova</i>	2007-2008	Atmospheric Chemistry
<i>Angela Reusch</i>	2009-2010	Geophysics
<i>Marc Fiddler</i>	2009-2012	Atmospheric Chemistry
<i>Rudra Pokhrel</i>	2019-2021	Atmospheric Chemistry
<i>Vaios Moschos</i>	2022-2024	Atmospheric Chemistry

PhD-STUDENTS and current status

Name/current position	Dates	PhD Dissertation-publications
Anthony Cochran (PhD) <i>STEM Consultant</i>	2009-2012	https://doi.org/10.1002/jgrd.50661 Measurement And Modeling Of Isocyanic Acid (Hnco) In The Troposphere
Sujeeta Singh (PhD) <i>Unknown</i>	2013-2015	https://doi.org/10.1080/02786826.2014.984062 https://doi.org/10.5194/acp-16-13491-2016
Damon Smith (PhD) <i>Assistant professor, WCSU</i>	2016-2020	http://www.aaqr.org/doi/10.4209/aaqr.2018.06.0243 https://doi.org/10.5194/acp-20-10169-2020 https://doi.org/10.5194/acp-20-10149-2020
Jaime Green (PhD) <i>Postdoctoral fellow UNC-Chapel Hill</i>	2015-2019	https://doi.org/10.1029/2020JD033518 https://doi.org/10.1029/2018JD030086 https://doi.org/10.1029/2019GL085498 https://www.pnas.org/content/115/32/8110 https://doi.org/10.1029/2018JD029284 https://doi.org/10.1029/2017JD028082
Janica Gordon (PhD)	2019-2024	https://doi.org/10.1080/02786826.2020.1822512 https://doi.org/10.1029/2021JD034731 https://doi.org/10.1029/2022GH000673
Megan Mouton (PhD)	2020-2024	https://doi.org/10.1080/02786826.2023.2198587 https://doi.org/10.1080/02786826.2024.2412652
Markiesha James (PhD)	2020-2024	https://doi.org/10.1039/D4EA00110A
Laxmi Odari	Current	
Chelia Thompson	Current	
Samir Kattel	Current	

MS-STUDENTS and current status

Name/current position	Dates	MS Thesis Publication
Benjamin McCarter (Corning)	1997-1999	https://doi.org/10.1021/jp991380h

Niel Crews (PhD) <i>Senior Engineer at nou Systems, Inc.</i>	1998-1999	Left after 1 year -Conference presentation https://flux.aps.org/meetings/YR99/CENT99/abs/S8199075.html
Tito Robinson (Image Scientists-DoD)	1998-2000	https://doi.org/10.1063/1.1359774
Brian Hattaway (Unknown)	2001-2003	https://doi.org/10.1063/1.1634557
James T. Swindell (PhD)- Chief, Airborne RADAR Branch (DoD)	2001-2003	https://doi.org/10.1016/j.chemphys.2004.06.068
Kevin Wedderburn Electrical Test Technician at Molex	2002-2004	https://doi.org/10.1016/j.chemphys.2006.03.025
Vivek Komaragiri - Chief Technology Officer at Sensory Analytics,	2003-2005	https://aip.scitation.org/doi/10.1063/1.1993588
Natanael Simminih Berhanu (PhD) Barrow Neurological Institute	2004-2006	https://doi.org/10.1016/j.chemphys.2008.12.007
Israel Begashaw- Senior Applications Scientists Li-COR Biosciences	2007-2009	http://pubs.acs.org/doi/abs/10.1021/jp1087338
Getachew Tedela PhD Adjunct Faculty at Marshall University	2011-2013	Project and conference abstract https://meetings.aps.org/Meeting/MAR13/Session/T16.2
Damon Smith (PhD)-Assistant professor, WCSU	2012-2014	http://www.tandfonline.com/doi/full/10.1080/02786826.2014.984062
Samin Poudel – PhD student CSE-NCAT	2015-2017	http://www.mdpi.com/2073-4433/8/11/228
Emmanuel Sarpong-PhD Student UNC-Charlotte	2017-2019	https://doi.org/10.3390/atmos11010062
Chelia Thompson	2020-2022	https://doi.org/10.1029/2022JD038460

UNDERGRADUATE Students

Name	year	Research topic /presentation/publication
Vernon Simmons (PhD)	1995	https://doi.org/10.1364/OL.22.000727
Tito Robinson	1995	https://doi.org/10.1364/OL.22.000727
John Brown	1999	RET
Michael Kutz	1999	Computer software
Ekkizogloy Luke	1999	Participated in the set-up of the laboratory
Champing Kwadowa	2000	Lifetime of excited states of Li
Wandylis Vergas	2002	Quenching cross sections of Li(3p) by H ₂ , and CH ₄
Ibrahima Mbaye	2002-2003	Li(3p)-CH ₄ ,C ₃ H ₈ ,C ₂ H ₆ ,Ar quenching cross sections
Larkish Perry	2002-2003	Li(3p)-CH ₄ ,C ₃ H ₈ ,C ₂ H ₆ ,Ar quenching cross sections
Jesse Fox	2006	Geophysics
Louis Crawley	2006	Geophysics field course-South Africa
Brandon Davis	2006	Geophysics field course-South Africa
Angela Edwards	2006	Geophysics field course-South Africa
Brandon Killian	2007	Geophysics field course-South Africa
Agbeve Kossi	2007	Geophysics field course-South Africa
Martin Jones (PhD)	2007	International REU Statistical Physics (Ethiopia)
Michael Pearson,	2007	International REU Seismology (Ethiopia)
Abewaw Belay	2007	International REU Seismology (Ethiopia)
Abewaw Belay	2008	Geophysics field course-South Africa
Osman Alshack	2008	Geophysics field course-South Africa

Brittany Dixon	2008	Geophysics field course-South Africa
Patrick McCarter (PhD)	2009	International REU Ground water exploration (Ethiopia)
Henok Shiferaw	2009	International REU (Ethiopia)
Kamesa Bryant	2009	Geophysics field course-South Africa
Octavian Hudson	2009	Geophysics field course-South Africa
Komi Messan	2009	Geophysics field course-South Africa
Jekevyn Peele	2009	Geophysics field course-South Africa
Carlye Phillips	2009	Geophysics field course-South Africa
Javon Pratt	2009	Geophysics field course-South Africa
Jessica Vincent	2009	Geophysics field course-South Africa
Chris Ware	2009	Cavity enhanced spectroscopy
Malikah Greene	2009	Mass spectrometry
Stefan Boskovic	2009	<i>Determining the absorption coefficient of the fourth O-H stretching overtone of peracetic acid using cavity ring-down spectroscopy.</i> Raleigh, North Carolina, 2011
J. Jefferies	2010	Cavity enhanced spectroscopy
C. Melvin	2010	Cavity enhanced spectroscopy
Megan Mills	2011	Secondary organic aerosol formation
Jasmyne Browne	2012	Secondary organic aerosol formation
Sinelk Birehane	2012	UV absorption cell,
John Cooper	2013	programming
Percy Williams	2014	Aerosol optical properties- Participated in FRAPPE campaign-NCAR
<u>Krislyn Miner</u>	2014	<i>Aerosol optical properties-Synthesis of inorganic complexes for volatile organic compound (VOC) detection. NCA&T Undergraduate Research Symposium, Greensboro, North Carolina, April 11, 2014.</i>
Marcus Vincent and <u>Chanelle Stigger</u>	2014	Aerosol optical properties <i>Differentiating absorption and scattering from biomass burning aerosols using the extinction-minus-scattering method. Central North Carolina American Chemical Society 14th Annual Poster and Vendor Night, Greensboro, North Carolina, April 1, 2014.</i>
Zainab Ali	2014	Aerosol optical properties
Myciah Edwards	2014	Aerosol optical properties
Quincy Moffitt	2014	Aerosol optical properties
Isabel Colon Bernal (PhD)	2014	Aerosol optical properties https://agu.confex.com/agu/fm14/webprogram/Paper7493.html
Khalil McMillan	2015-2016	Aerosol optical properties- <i>Calibration of a cavity ring down spectrometer and nephelometer using polystyrene spheres and Mie theory</i> https://meetings.aps.org/Meeting/MAR16/Session/T1.44
<u>Tashell Dowdell</u>	2016	Aerosol Optical properties- <i>Characterization of wall loss in a smog chamber</i> https://agu.confex.com/agu/fm16/meetingapp.cgi/Paper/128454
Mark Auden	2015	Emission studies of CaMoO₄: 50% W hosts used for CH₃CN detection. STEM Research and Career Symposium, Emory University, Atlanta, Georgia, March 25-27, 2015
Camela Kiernan	2015	Aerosol optical properties
Marquin Spann	2016	Aligning procedure for mode matching of a laser to a ring-down cavity. <i>Central North Carolina American Chemical Society Poster Vender Night, Greensboro, North Carolina, March 28, 2017</i>
Hannin Abdufadal	2017	Optical properties of aerosols
Bianca Rhym	2016-17	LIBS- Laser-induced breakdown spectroscopy (LIBS). <i>Central North Carolina American Chemical Society Poster Vender Night, Greensboro, North Carolina, March 28, 2017.</i>
William Lassman & Brandon M Lewis	2018	International REU (Botswana)- <i>Preliminary Measurements of Aerosol Concentration and composition in Palapye, Botswana</i> https://ams.confex.com/ams/2019Annual/meetingapp.cgi/Paper/353285
Ana Carrell And Julian Gordon	2018	International REU Seismology (Botswana) <i>Ground Penetrating Radar and 2D Electrical Resistivity Modeling Analysis of the Lotsane Dam, Botswana, AGU</i>

		Fall Meeting, Washington DC, 2018. https://agu.confex.com/agu/fm18/meetingapp.cgi/Paper/440550
Ian A Krintz	2018	International REU (Botswana)- <i>Establishment of the North America and sub-Saharan Africa Mountain Aerosol Network (NASA MAN) of Handheld Sun photometers for Air Quality Studies and Validation of Satellite-Retrieved Aerosol Products.</i> https://agu.confex.com/agu/fm18/meetingapp.cgi/Paper/420765
Chelia Thompson	2019-	FIREX-AQ -Emission factors https://digital.library.ncat.edu/ugresearchsymposia/55/
Kaylyn Reese	2018-19	TEM Image analysis https://digital.library.ncat.edu/ugresearchsymposia/197/
Accacia Hines	2019	International REU Air Quality (Botswana)
Madeleine C. Lucas	2019	International REU Seismology (Botswana)
Sierra Melton	2019	International REU Seismology (Botswana)
Orlance Shirley	2019	International REU Air Quality (Botswana)
Timothy Honablew	2020-	Modeling fractal Dimensions-Extracting and Modeling Aerosol Optical Properties Using TEM Imaging and RDG Theory. <i>American Geophysical Union Fall Meeting</i> , Online, December 1-17, 2020. https://agu.confex.com/agu/fm20/meetingapp.cgi/Paper/671094 https://doi.org/10.3390/atmos14020221
David McCutcheon	Current	Calibration of AE-33
Nickolas Duncun	2022-23	
Alexander Nanor	2022-23	

3-D. Contributions to course and curriculum development

- ◆ *Defined the contents of the courses on Atomic, Molecular and Laser Physics both for the undergraduate and graduate level. This course was again improved and named The Physics of Atoms, Molecules and Nano systems and was offered for the first time in 2005.*
- ◆ Introduced a new graduate course: Spectroscopic techniques.
- ◆ Contributed to the proposal to establish MS program in Physics
- ◆ *Led collaborative educational research efforts to improve retention and success of African American Students in STEM areas. This includes developing research capacity in*
 - a) Led the effort to establish MS degree in Physics
 - b) Served in the committee that developed the Energy and Environmental Sciences PhD Program
 - c) Served in the committee that developed the Computational Sciences and Engineering PhD program at NCAT.
 - d) **Chemical Physics**- The chemical physics research was funded by NSF (CAREER, MRI,) funds (a total of > \$1.2 million)- a State of the Art-Laser Lab and Mass spectroscopy laboratory and quantum chemistry computational facility was developed to provide competitive MS degree in Chemical Physics to Underrepresented Minorities in Physics.
 - e) **Geophysics**: - Led the development of the geophysics program (concentration in Physics) *Established a seismology lab in the department of Physics, and provided geophysics field experience for students in Africa through multiple NSF Grants including NSF-OEDG, NSF-PIRE, and NSF-IRES (a total of >\$2 million in funding)*
 - f) **Atmospheric Sciences**: -Led a team of 32 scientists and engineers representing nine academic departments in six institutions (four minority serving) to develop the NOAA-

Interdisciplinary Scientific Environmental Cooperative Science Center (ISETCSC) with a \$12.5 million funding. This helped initiate the research and education in Atmospheric Sciences. Led the effort to establish the BSc program in Atmospheric Sciences and Meteorology and a PhD Concentration in Atmospheric Sciences.

- g) **Atmospheric Physics/Chemistry-** Following the ISET Center developed research capacity in Atmospheric chemistry and Physics through additional grants from NSF, DoD- (total funding >\$2 million)
- h) **Develop Interdisciplinary REU program-** Led an Interdisciplinary NSF funded REU program at NCA&T and provided research opportunity for 35 undergraduates (three of the participants continued as graduate students at NCA&T).
- i) Throughout his career Bililign recognized the importance of contributing to the mentoring of students at K-12 to develop a pipeline of students prepared for success in STEM careers. To help the professional development of their teachers,
 - He led the organization of summer earth science teacher workshops involving NOAA scientists and IRIS since 2005. These workshops have involved over 200 teachers.
 - He also volunteered as a faculty mentor for a NSF content mentoring project that involves middle school math and science teachers, workshops for 5th grade science teachers.
 - With his leadership, NCAT has focused on developing deep, sustainable relationships with teachers and students through several programs – NSF RET, student summer Weather & Climate camps, ISETCSC Day, Geosciences Day and a feeder high school program.
 - He coordinated a collaborative proposal between the School of Education at NCA&T, the Guilford County School system and the ISET Center on a successful NASA grant “Enhancing Earth System Science Education in Guilford County Schools Central Region Secondary Schools” that provided training to the Guilford County teachers.

◆ Played active role in the creation of the Joint School of Nanoscience

3-E – K-12 OUTREACH

Research Experience for Teachers: Hosted 3 teachers for training in Air Quality, Summer 2023

Science Fair/School Visits: Conducted several school visits to area schools and participated in Career Fairs and Science Fair judging. (1998-2012)

Science Olympiad: Led Science Olympiad teams at the Academy at Lincoln

Teachers Workshops: Organized K-12 Summer Teacher’s Workshop (later called the Earth Systems Science Institute for Educators) from **2005-2012**: annually 20 K-12 teachers from Guilford and surrounding counties participated in a week-long summer workshop.

Summer Camps: Organized summer weather and climate camp for middle and high school students from **2006-2012**. Every summer 20 students spend a week on campus during the workshops

4. Workshops, short courses, and Professional Services

2024-25

- **Fulbright Scholar -Addis Ababa University- Ethiopia**
- Conducted workshops on grant writing and grant management at 6 Major Research Universities in Ethiopia (Arba Minch (twice), Hawassa (twice), Jimma, Haramaya, Addis Ababa (twice) and AASTU).
- Organized a Panel discussion to create awareness on Air quality which will be followed by a comprehensive report with contributions from 25 scientists across the world and Ethiopia organized by the Ethiopian Academy of Sciences.
- Conducted training workshop at Ethiopian Meteorology Institute including Addis Ababa EPA
- Conducted field measurements of NO_x, SO₂, VOC, BC, and filter sampling at several sites in Addis Ababa by 5 PhD students, I was able to teach a course and co advise 5 PhD students at AAU.
- Offered courses on aerosol Physics and Chemistry (Hybrid with my students in the US)
- Submitted four major proposals three pending one declined to be resubmitted involving AAU, Federal Environmental Authority and C40.

2023-2024

- Served as member of organizing committee for Air Sensors International Conference Ghana <https://asic.aqrc.ucdavis.edu/asic-ghana>
- Served as member of organizing committee for Together for Cleaner Air workshop in Addis Ababa, Ethiopia, <https://www.eat.lth.se/english/together-for-cleaner-air-in-ethiopia/>
- Co-organized the East African Air quality workshop, Chapel Hill, USA- <https://vizuete.web.unc.edu/home/workshop-to-develop-a-proposal-addressing-african-air-quality/>
- Organizer and chair- Addis Ababa Air quality working group
- Re-elected UCAR membership committee

2022-2023

- Organized an international workshop in Air Quality in Kigali Rwanda <https://cpaess.ucar.edu/meetings/2023/follow-up-pilot-design-air-quality-africa-logistics>
- Reviewed Journal articles for Geo health and Journal of Geophysical Research-Atmosphere
- Guest editor for special issue of Atmosphere- Measurement of Aerosol Optical Properties and Radiative Forcing https://www.mdpi.com/journal/atmosphere/special_issues/059KQU628J
- Review Editor: Editorial board of Atmosphere and Climate, a section within Frontiers in Environmental Science

2021-2022-

- Elected for the UCAR membership Committee
- Served as a scientist in residence at the Ocean Discovery Institute, San Diego, CA
- Organized summer field work in Air quality for students in Botswana-
- Started serving as a Chair of the Ethiopian Diaspora Higher Education Task force to coordinate support to Ethiopian Universities.
- Initiated the EPA-NCAT seminar series at NCAT

- Attended APS March Meeting in Chicago
- Attended AGU Fall meeting in Chicago
- Plenary session speaker at The African Society for Air Quality (ASAQ) Virtual conference <https://indico.cern.ch/event/1121006/timetable/#20221011>

2020-2021

- Organized and chaired two sessions on Air quality in emerging megacities in low- and middle-income countries session at the American Meteorological Society meeting in Houston. <https://ams.confex.com/ams/102ANNUAL/meetingapp.cgi/Session/59163>
- Invited to attend -Building a Biotechnology Innovation Ecosystem to Mitigate Climate Change. This workshop will convene stakeholders from multiple sectors and disciplines to discuss potential research and technological innovation areas needed for biotechnology innovation ecosystems to mitigate climate change. October 12-13, 2021 <https://web.cvent.com/event/c630ff92-7038-4d79-904d-09f0d8331622/summary>
- Organized air quality certificate course for East Africa and offered two lectures. <https://camsnet.org/air-quality-in-east-africa-certificate-program/>
- Participated in the Ethiopian Physical Society in North America Virtual course for Ethiopian students and gave a lecture. <https://eventee.co/en/e/epsna-vss-2021-9743>
- Organized and conducted Workshop on a Pilot Design for Air Quality in Africa: <https://cpaess.ucar.edu/meetings/2020/pilot-design-air-quality-africa>
- Reviewer for AGU Journals and Atmospheric Chemistry and Physics
- Speaker at The Department of Atmospheric and Oceanic Sciences Colloquium University of Colorado- Boulder, Jan 15, 2021 “*Optical Properties and Emission Factors of Biomass Burning Aerosols from Sub-Saharan Africa Biomass Fuels-*” https://www.colorado.edu/atoc/sites/default/files/attached-files/jess_20210115_atoc.pdf
- Organized and chaired a session on Air Quality in Emerging Mega Cities at the Annual Meeting of the American Meteorological Society 2021 meeting. <https://ams.confex.com/ams/101ANNUAL/meetingapp.cgi/Session/56810>
- Attended APS March 2021 meeting
- Participated in the Wildfire and the Biosphere Innovation Lab <https://apply.hub.ki/wildfire/>

2019-2020

- Served in NSF GRFP panel
- *Speaker at the Digital Air Quality – East Africa Workshop 2: Developing Data Platforms, University of Birmingham England, 9/15/2020 Title was “**Presentation – Innovation in Air Quality Monitoring in Ethiopia**”* <https://www.asap.uk.com/daq-east-africa>
- Speaker at Ocean & Climate Seminar Series | Lamont-Doherty Earth Observatory, Columbia University, Nov 6, 2020 “*Laboratory studies Optical and Physicochemical Properties of Biomass Burning Aerosols from Sub-Saharan Africa Biomass fuels.*”
- **Co-Chair-** NSF funded workshop- Broadening Participation of Underrepresented Minority Undergraduates in International Research: https://www.nsf.gov/awardsearch/showAward?AWD_ID=1848137
- **Chair** – Organizer of the workshop Air Quality in African Megacities, NCAR, Boulder, CO
- Conducted summer research in Botswana with five students
- NSF Panel
- Topical editor for Atmosphere
- Reviewer for Atmospheric Chemistry and Physics

- Attended AGU Fall meeting
- Topics Board editor: Atmosphere: https://www.mdpi.com/journal/atmosphere/topic_editors

2017-2018

- Conducted summer research in Botswana with five students
- Organized Workshop on Diversity in Geosciences at NCAT
- Plenary speaker at the Workshop on Diversity in Geosciences- Morgan State University, Baltimore.
- Colloquium Speaker at the Department of Atmospheric Sciences, Colorado State University
- Attended the Geological Society of America Conference
- Speaker at New Faculty Workshop, College of Science and Technology

2016-2017

- Served in NSF PIRE- Panel
- Served in NSF-IRES Panel
- Served at NSF EPSCoR Review Panel
- Served at NSF- PAESMEM panel
- Attended American Physical Society meeting in New Orleans LA
- Attended the American geophysical Union meeting, San Francisco
- Attended the AAAS 2017 STEM Mentor Meeting
- Colloquium speaker at Addis Ababa University, Ethiopia
- American Physical Society Mentoring Workshop- Houston TX

2015-2016

- Organized three sessions on Earth and Planetary System Sciences at the National Society of Black Physicists, Baltimore MD Feb. 2015
- Attended AGU Dec. 2015
- Attended APS March 2015 (San Antonio TX) and 2016 (Baltimore MD)
- Led a workshop for QEM-Quality Education for Minorities workshop on mentoring early career faculty at HBCU's
https://static1.squarespace.com/static/57b5ee7d440243ac78571d0a/t/57bb27b35016e14742bafc25/1471883190911/PDM_MentoringGuide.pdf
- Attended Earth Educators Rendezvous, Madison WI (July 17-22, 2016)
- Served in NSF Panel: - Chemistry, ENCLUDES, GRFP
- Attended the 11th International User Meeting and Summer School on Cavity Enhanced Spectroscopy,
- Gave a seminar at Hampton University

2014-2015

- Attended the "Innovations in STEM: National Priorities and NIST" Symposium with HBCU"
- Organized a meeting of NCA&T Faculty and Colorado State University-Research collaboration in Atmospheric Sciences
- Presentation at the STEM center Symposium in Greensboro
- Attended AGU 2014

2013-2014

- Organized a session “Role of Physics in geosciences” at the 80th SESAPS, Bowling Greene, KY. <https://meetings.aps.org/Meeting/SES13/Session/BC>
- Conducted summer workshops for teachers and travelled with students to South Africa
- Visited and discussed the planning of NCA&T students in the FRAPPE field Campaign in Boulder.
- Attended The 14th National Conference and Global Forum on Science, Policy, and the Environment: Building Climate Solutions.
- Served as a reviewer at NSF- Washington DC
- Organized collaboration meeting with Stanford University
- Attended AGU 2013- San Francisco, CA.
- Attended the Africa Climate Conference Arusha, Tanzania, Oct 2013

2012-2013

- Elected president of the Ethiopian Physics Society in North America
- Invited to the **Diaspora Global Forum in July 2012, February 2013 (Boston) May 2013** (Washington DC) organized by the US State Department, AAAS and National Academy of Science,
- **Invited as a panelist on the USA African National Congress (ANC) Centenary meeting:** Historical Challenges: Contemporary Solutions: The role of HBCUs and HDI’s in Addressing the Effects of Racism and Apartheid- Howard University, Washington DC Sept. 17-19, 2012
- *Served as a Co -Organizer of Workshop and Convener:* Engineering, Sustainability, and the Geosciences, Colorado School of Mines March 6-8, 2013; <https://serc.carleton.edu/integrate/workshops/engineering2013/index.html>
- Underrepresentation of Minorities in geosciences- Urban Education Institute, Greensboro, NC
- Conducted summer workshops for teachers and travelled with students to South Africa
- *Lifelong learning in the Sciences- A presentation at University of Missouri St. Louis, Oct 17, 2012.*
- Keynote Speaker: JOINT NCA&T and UNCG- Graduate Student Mentoring Workshop at UNCG Monday, November 12, 4 pm
- Coach- Elementary Science Olympiad- The Academy at Lincoln
- Speaker at the Researcher Award Dinner- NCA&T, April 2013
- Attended AGU 2012- San Francisco, CA

2011-2012

- Keynote speaker at: 7th International Conference on **African** Development (ICAD), Kalamazoo, MI, Title “The need for interdisciplinary research and education for sustainable human development to deal with global challenges”, July 28, 2012 <http://international.wmich.edu/content/view/2652/1787/>
- Keynote speaker at the US Patent and Trade Mark Office, Society of Ethiopian Engineers and Scientists, May 17, 2012
- Dr. Solomon Bililign of the Department of Physics turned up on [EBS-TV, a satellite channel aimed at Ethiopians around the world](#). The interview was broadcast twice and [is now available on YouTube](#).
- Conducted summer workshops for teachers and travelled with students to South Africa

- Content mentor for a middle school teacher Randleman Middle School.
- Couch- Elementary Science Olympiad- Lincoln Academy
- Associate Editor for “The International Journal of Climate Change: Impacts and Responses Volume 3, Issue 1”
- Led the effort for the Establishment of Earth System Science and Engineering Institute at NCA&T with presentations made in the College of Engineering and School of Agriculture- White paper included
- Organized three sessions on Earth and Planetary System Science at NSBP- Sept 22-24.
- Attended Africa Array Diversity meeting, Houston, TX- Oct 14.
- Seminar speaker at Howard- Physics Department Sept. 17.
- Guest speaker –Research week for Graduate Research Day-April 17- <http://www.ncat.edu/research/about/research-week2012.html>
- Conducted a 1-day workshop for 5th Grade science Teachers/Physics and Atmospheric sciences
- Organized Geosciences Day- March 12 and was attended by 130 Middle and 100 high school students
- Organized Earth Day April 27 attended by 130 Middle school students
- Serve as a couch to elementary school science Olympiad.
- Seminar Speaker at Winston Salem State University- March 7, 2012

2010-2011

- National Society of Black and Hispanic Physicists- Austin TX- Session Chair and organizer
- Africa Array Diversity Meeting, Houston TX
- Navy STEM Forum
- ORNL- Joint meeting of NOAA-CSC directors and ORNL leadership
- Organized a session “*The role of physics in atmospheric, ocean and earth sciences*” for the 77th the Southeastern Section of the American Physical Society in Baton Rouge LA. <https://meetings.aps.org/Meeting/SES10/Session/BA>
- Visited the University of Iowa, selected as Alumni fellow for the University of Iowa
- Organized and presided over the NOAA-NAC meeting-Fresno California, Nov 1-3
- Attended the NOAA Science Board meeting and Center Directors Meeting, Dec 1, 2010
- Attended the NOAA Center Directors Meeting and Round table meeting with Secretary of Commerce Gary Locke, March 23-25, 2010
- Attended the NSF PIRE PI’s meeting Feb. 14-16, 2010
- Served as a Panel member for NSF Chemical Instrumentation program, March 6-7
- Conducted summer workshops for teachers and travelled with students to South Africa

2009-2010

- Presentations made by Bililign at CAS Colloquium, April 2010 At the Triad Area CEO reception, Dec 2009, Division of research Researcher Appreciation day April 2010,
- Organized and presided on NOAA advisory Committee meeting, Nov. 10, 2010
- NOAA EPP forum, organizing committee member, Luncheon speaker, Nov 11-13, 2010
- Attended the NOAA EPP Center Directors meeting in Silver Spring MD and visited NC senators in Capitol Hill on the ISETCSC progress. Sept 9-11
- Attended the OEDG –PI’s meeting at the American Institute of Research, Washington DC, Sept 24-26
- For the State Board of Education and the NC Dept. of Public Instruction, provided professional service a 1-day service July 22, to conduct the Physics Praxis II Standard

Setting Study

- Organized 1 week Earth System Science for Educators workshop for 25 teachers (Jointly funded by NSF and NOAA funding).
- Organized a one-week summer camp for 21 high school students (jointly provided by NSF/NOAA funding)
- Organized Middle school camp in collaboration with The Greensboro Natural Science center.
- Attended a workshop on expanding the AfricaArray (<http://africaarray.psu.edu/about/default.asp>) network to support interdisciplinary and multidisciplinary science in Africa on **June 2-4, 2010**, in Washington D.C. at Howard University.
- Visited NCAR, NOAA ESRL and University of Wyoming June 10 -11, 2010, and attendee collaboration meetings

2008-2009

- Organized and led the NOAA-Advisory Committee meeting in Raleigh Oct: 27-28 2008
- Attended Weekly phone meetings of the NSBP/NSHP organizing committee to organize the EPSS (Earth and Planetary System sciences session)
- Organized a session in Atmospheric sciences and Geophysics at the 75th SESAPS meeting.
- Attended the ISET thrust area II (Greesnor08.8/08) and Thrust Area III (Minneapolis 8/11/08) meetings
- Attended summer student presentations of NOAA summer intern students (Maryland 7/31/08-8/1/08)
- Organized and facilitated with NOAA and IRIS the summer teachers Earth System Science Institute attended by 25 high school teachers (150 applied)
- Organized the summer middle school (20 students) and high school weather camp (25 students)
- Attended NOAA-CSC Directors meeting, Oct 2008, attended a meeting at NOAA-NCDC- November 08
- Travelled to Addis Ababa University with Students on International Research Collaborations
- Led the organizational committee to form the Ethiopian Physics Society in North America, conducted a one-day meeting at the American center for Physics (Aug 2/2008) and submitted an article for the Newsletter on Forum on International Physics.

2007-2008

- May 25, 2007: Visit to Capitol Hill, meeting with staffers of Senator Doll, Burr and Congressman Watt on NOAA-ISET.
- June 11: NOAA-ISET Thrust area 1 meeting, Presentation Title: Cavity Ring Down Spectroscopy.
- Travelled to Addis Ababa University with Students on International Research Collaborations
- June 18: Meeting with NOAA scientists at Boulder, CO.
- June 13-14: Visit to Penn State and presentation on NCAT geophysics program.
- July 14-Aug 4: Traveled to Ethiopia with three students: Report in Appendix *Presentation: Understanding Climate Change- Capstone Interdisciplinary Problem of the Century: Talk at AAU-Department of Physics, Ethiopia; July 2007.*

- Served as external examiner to five MS student thesis at Addis Ababa University.
- Organized and Chaired the Earth and Planetary System Science session at the National Society of Black Physicists and Hispanic Physicist in Washington DC.
- Organized a session “Forefront Atmospheric Physics and Geophysics” at the 75th Annual meeting of SESAPS, Raleigh, NC, 2008
<https://meetings.aps.org/Meeting/SES08/Session/EB>
- *Attended the NOAA-EPP Center directors meeting in Silver Spring MD, Feb. 27-29-2008, and Briefed the North Carolina Senators (Dole and Burr) and Congressmen (Watt and Price) on the accomplishments of NOAA-ISET Center.*
- *Attended the NOAA-EPP Center directors meeting in Silver Spring MD, Oct 2007*

2006-2007

- Attended the APS, Physics Chairs Meeting; Maryland, June 8-11, 2006
- Served at NIH Panel, NIH, June 20-22, 2006.
- Attended NOAA-ESRL dedication ceremony at Boulder Colorado, Aug 21-23
- Organized and Chaired the Earth and Planetary System Science session at the National Society of Black Physicists and Hispanic Physicist in Boston MS.
- Visited Ethiopia with **Dr. Jemberie** and Addis Ababa University: July 20-Aug. 9, as part of NSF funded planning grant to develop research collaboration in geophysics and theoretical physics. Gave a talk entitled “*Photochemistry and Mass Spectroscopy of Small Clusters*”. The talk was attended by over sixty faculty and students at Addis Ababa University. *Attended the NOAA-EPP Center directors meeting in Silver Spring MD, March 17-20, 2007*

2005-2006

- NATO Advanced Institute, The 22nd Course of the International School of Atomic and Molecular Spectroscopy Erice, Sicily, Italy June 5-21, 2005.
- Industrial Physics Forum, AIP/NIST, Maryland. Nov. 6-9, 2005
- E-course meeting, Penn State, PA, Oct 17, 2005
- Reviewer for Chem. Phys, and Journal of Physical Chemistry
- Attended the SURA –MI meeting. (August 2005)

2004-2005

- Attended the National Institute of Aeronautics Fellows meeting, Langley, VA
- Attended the Sub-Saharan Africa Workshop at the National Science Foundation, January 2005.
- Attended the NATO Advanced Study Institute, International School of Atomic and Molecular Spectroscopy: 22nd Course: New developments in Optics and Related Fields Location: Ettore Majorana Center for Scientific Culture Erice, Sicily, ITALY: June 6-21, 05
- Attended the APS Physics Chairs Conference, MD
- Attended the 71st Annual Southeastern Section meeting of the American Physical Society, Oak Ridge, TN,
- Attended the Triangle Biophysics Symposium, Nov. 2004

2003-2004

- Attended the Grid Computing Workshop, UNC Chapel Hill, Oct. 28-29, 2003.
- Attended the ITR Bio geometry group meeting Nov 17-18, Duke University (2003)
- Made a presentation at Livingston College, Salisbury, NC. Nov 14, 2003.
- Gave a colloquium: Title of the talk "Physical and Chemical quenching of Li (3p) by several

gases." Morgan State.

- Made a presentation at DOR, NCA&T, for the NSF guest Dr. Thomas Windham, March 22. Title of talk "Laser Spectroscopy, Nanoclusters and Nanoalloys"
- Attended the weekly meetings of the CES committee.
- Served on the University Computational Engineering and Science Committee.
- Edited two chapters of the book "Physics: Principles and Problems for McGraw Hill.
- Reviewed three chapters of the book "*A Comprehensive Introduction to Quantum Mechanics*" by Robert Scherrer, Ohio State University, for Addison –Wesley.
- Attended the planning committee of HBCU-UP conference.
- Attended the organizing committee of Sloan Foundation Conference.
- Attended the Proposal Review Panel: NSF, Feb 4-7, 2004

2002-2003

- Consultant: QEM: HBCU –UP Multi-year Grant Proposal Development Workshop
- Served at NSF panel
- Attended the Triangle Biophysics Symposium
- Attended a workshop "Leveraging Innovations at our UNC Campuses" sponsored by UNC office of the President and the National Science Foundation. February 27, 2003
- Attended the Spectroscopy Celebration Workshop, University of Connecticut, Nov. 9, 2002

2001-2002

- Attended workshop at NC Supercomputer Center: Title of Workshop: "Gaussian: Theory and Practice" Oct 9-12, 2001.
- Attended two-day training on IBM SP at North Carolina Supercomputer Center.
- Attended the QEM/NSF sponsored workshop on MRI ("Major Research Instrumentation") in Atlanta, GA November 9-10, 2001.
- Served in the NSF Panel on Bio Multi-User Equipment Program, at NSF January 30-Feb. 1, 2002 In Arlington, VA.
- Attended the American Physical Society Division of Atomic and Molecular Physics Conference, May 29-June 1, 2002, Williamsburg, VA
- Attended Molecular Dynamics workshop, Cooper Mountains, CO

2000-2001

- Attended the Triangle Biophysics Symposium " Macromolecular Interactions, Emerging Concepts and Technologies" Oct 19-21, Durham North Carolina.
- Attended a workshop organized by the National Biotechnology Information Facility entitled " Bioinformatics: Merging Biology and Computer Science" Oct. 16-18, 2000, Greensboro, NC.
- Participated in the meetings of the NC Genomic and Bioinformatics consortium meetings.

1999-2000

- 66 SESAPS meeting, Nov 7-9, 1999, Chapel Hill, NC
- Gordon Research Conferences on Clusters, Nanocrystals and Nanostructures, Connecticut College.
- American Chemical Society Southeast Regional meeting, Knoxville, TN Oct. 17-20, 1999.
- LS-NCAMP Undergraduate Conference, Winston Salem State University, Feb. 2000.
- APS-DAMOP: 2000, University of Connecticut, Storrs, Connecticut, May 2000.

1998-1999

- APS (American Physical Society Meeting) March 1999, Atlanta, GA

- American Chemical Society regional meeting, Nov. 4-7, RTP, NC 1998

1997-1998

- NCAMP Conference, Charlotte, NC, April 1998.
- Free-Electron Laser, workshop, Newport News VA, 1998

1996-97

- Fourth Winter Gordon Research Conference on Structures, Energetics and Dynamics of Gaseous Ions. Feb. 22-28, 1997, Ventura CA.
- The Fifth Workshop Consortium for nanostructured Materials, Nashville, Tennessee, Oct. 17-19, 1996
- Joint APS/AAPT Meeting, April 17-21, 1997, Washington D.C
- Second Annual Life and Physical Sciences Symposium, NCA&T, Feb. 21, 1997

1995-96

- Workshop on Material Science for Historically Black Colleges and Universities in the Southeastern United States, Oak Ridge, Tennessee, October 13-14, 1995
- Workshop on CW All-Optical Multiple Resonance Spectroscopy, June 16-17, 1995, University of Connecticut Laser Facility, Storrs, Connecticut.
- Workshop on Teaching Large Classes, Feb. 10, 1996, The Friday Center, Chapel Hill, North Carolina
- College of Arts and Sciences Grantsmanship Workshop, Dudley Cosmetology University, Feb. 17, 1996.
- The First Annual Life and Physical Science Research Symposium. NCA&T, Feb 23, 1996.

1994-95.

- Annual Meeting of the Optical Society of America and the Xth Interdisciplinary Laser Science Conference, Dallas, Texas, Oct. 1994.
- Annual meeting of the National Society of Black Physicists, April 12-15, 1995, Atlanta GA.
- HBCU Workshop on the Physics of Materials and Materials Science, Washington D.C. October 13-15, 1994
- NCAMP Faculty Forum, Oct. 1994, University of Texas- Austin.

5. Service to the University and Community

5-A. Major accomplishments as Department Chair (2001-2006)

- *Led the complete revision of the physics program (BS and MS): this includes creation of new, courses and new degree concentrations in geophysics, space science interdisciplinary physics and engineering physics for ABET accreditation.*
 - *Led aggressive recruitment campaign: contacting local schools, offering lectures on careers in physics, interacting with schoolteachers. The enrollment and graduation rates have shown a modest increase. (From 27 undergraduate majors to 37 undergraduate majors and 5 double majors)*
 - *Obtained Sloan foundation grant for student scholarship.*
 - *The Department of Physics is a major player in all interdisciplinary degree programs: Energy and environment, computational sciences and engineering and the biotechnology program. The Department contributed new courses to these programs.*
 - *Developed faculty student mentor –Mentored teams to ensure student success and retention.*
 - *Invited prominent and notable speakers to the department: 2001 Nobel prize winner in physics (Carl Weiman) Prof. Eric Mazur of Harvard, prof. Gwang-Hi Jeung (France), Prof Carl Linberger, Colorado to mention a few.*
 - *Provided summer research opportunities to more than 60% of majors through collaborators.*
 - *Increased research productivity in the Department: the department has more than 60% of the active funded projects in the college of Arts and Sciences and the only NSF-Major Research Instrumentation, and NSF Career award in the University*
 - *Increased the visibility of the department by producing the first brochure and improved web site.*
 - *Created the Physics Alumni advisory board and scholarship fund.*
 - *Established a computational facility in the Department of Physics.*
 - *Developed strong partnerships including the one with SURA (Southern Universities Research Association)*
 - *Established a seismology lab in the department of Physics.*
 - *Two NCA&T students spent three weeks in Marseilles France studying quantum chemistry.*
 - *Conducted active research, published papers, acquired grants, supervised graduate student thesis, and taught several courses while performing administrative duties.*
 - *Led collaborative educational research efforts to improve retention and success of African American Students in STEM areas.*
 - *Mentored high school students during the summer and run the one-week PHYSICS SUMMER CAMP for 5th grade students in the Department.*
 - *Awarded the Outstanding Researcher award and Teacher of the Year Awards while serving as a Department Chair.*
- *5-B. Service to the Department Graduate Coordinator 2022-recruited the largest # graduate students in 2023*
 - *Chair, TRP committee 2022-*
 - *Several search committees (faculty and chair)*

- *Colloquium organizer 2019-2020*
 - *Organized a biweekly NCAT-EPA seminar series*
 - *Several search committees*
- *Graduate Coordinator: 1998-2001,*
- *MS proposal Committee 1996-1997*
- *Student Advisory Committee: 1995-96*
- *Phys. 241 coordination Committee (1995-1998)*
- *Colloquium organizer 1995-96, 1996-97*
- *Library Liaison: 1993-94, 1994-95, 1995-96*
- *Examination Review Committee. (1997-1999)*
- *Peer reviewer, spring 1996.*

5-C. Service to the College

- *Undergraduate Research Committee*
- *COST Seminar Series and Event Planning Committee-Co-Chair 2021-present*
(Invited two distinguished speakers including a Nobel Laureate)
- *Member of the College Tenure and Promotion Committee 2018-2020*
- *AST PhD advisory committee*
- *Member of the College Tenure and Promotion Committee*
- *Member of search committee (Physics department chair) Spring 1995*
- *Acting Chairperson of the Physics Department. Spring 1997*
- *Support Personnel: The first and Second Annual Life and Physical Sciences Symposium. (Introduce speakers, preside meetings.)*
- *Member of Organizing Committee, NSBP, National Society of Black Physicists, 2000.*
- *Organizer of the Symposium “Advances in Atomic, Molecular and Optical Physics”, NSBP 2000*
- *Member of the Editorial Board, College of Arts and Sciences Newsletter. (2000-2001)*
- *Chair, Chemistry Chairperson Search Committee (2002)*
- *Member of the College planning committee for M.S. degree program in computational Sciences.*

5-D. Service to the University

- *Member of the University Research Council*
- *Member of the University Senate (representing the department) (1996-2000).*
- *Member of the Educational Policy Committee of the Senate. (1996-2000).*
- *Member of the research and development advisory committee of North Carolina Genomics and Bioinformatics Consortium.*
- *Member of the Interdisciplinary PhD planning committee: Program: Energy and Environmental Studies.*
- *Member of the FUTURES VENTURE SEED GRANT, task force (2002)*
- *Member of the Computational Sciences and Engineering program-developing committee.*
- *Abstract reviewer for HBCU-UP undergraduate student conference.*
- *University Graduate Council member (2000-2006t)*

- *University Teachers Education Council member (2001-2006t)*
- *University Research Council member (2004- 2010t)*
- *Member of the Joint school of nanoscience committee.*
- *Member of the University committee to develop University Reassign time policy*
- **Co-Leader, Research thrust area in Nanostructured Materials Research (2004-2008)**
- *Member of University Commission on Campus Intellectual Life*
- *Search Committee: University Studies Dean.*
- *Search Committee member: Vice Chancellor for Human resources*
- *Member of the University tenure promotion and reappointment committee*
- **Chair and member of the Global Warming Task Force (2008)**
- *Member of the UNC-Tomorrow 21st century skills (2008)*
- *Member of search committee for the deans of College of Arts and Sciences and Engineering*
- *Strategic Planning Committee- Sub Committee on Research*
- *Chair, University Research Award Committee*
- *Steering Committee of the **Enhancing Bioscience and Engineering Education (EBEE)** through curriculum integration and research experiences.*
- *Committee on Developing STEM Early College at NCA&T*
- *Member of the search Committee for Dean of the college of Arts and Sciences, and College of Engineering.*
- *Member of the Title III graduate student selection committee.*

5-E. Professional Service

- *Proposal reviewer for the Czech National Science Foundation, US National Science Foundation and NASA postdoctoral program*
- *Proposal reviewer for NASA*
- *Proposal reviewer for NSF*
- *Journal article reviewer for Current Applied Physics- Elsevier*
- *Reviewer for Scientific Reports*
- *Associate Editor for “The International Journal of Climate Change: Impacts and Responses Volume 3, Issue 1”*
- *Reviewer for Journal: Atmospheric Chemistry and Physics*
- *Proposal reviewer for DOE-Basic Sciences*
- *Topical editor-Journal Atmosphere*

5-F. Service to the Community

- ***Scientist in Residence-*** *Ocean Discovery Institutive, San Diego, CA, Oct. 2023*
- *Couch-Elementary Science Olympiad-Academy at Lincoln 2012, 2013*
- *Organized and provided funding through grants to the weeklong Earth System Science Workshop for Educators annually for 25 NC high school teachers every year from 2005-2013*
- *Organized summer weather camp for middle and high school students through NOAA-ISET Center (summer 07, 08,09,10), Teacher’s workshop with NOAA and IRES (2006,2007, and 2008)*
- *Founder and Chair of the organizing Committee of the Ethiopian Physics Society*

- in North America*
- *Visited several high schools in Greensboro and in North Carolina and gave a 1 hour lecture to two groups of 45 students on the career opportunities in physics and the physics department at A&T. Flyers and brochures were distributed (2004,2005,2006)*
 - *Organized a one-week summer PHYSICS CAMP for 15 5th grade kids*
 - *Served as a science fair judge at General Greene Science and Technology School (2002,2004,2006)*
 - *Participated at the University Open House in Washington DC, Dec. 2001.*
 - *Participated in a CAREER FAIR at Northeast High School on Oct 30, 2001.*
 - *Public lecture on Lasers for public scientific literacy (CIVITAN CLUB of GREENSBORO) 1999.*
 - *Science demonstration on optics to third grade students at Somerfield Elementary School March 26/1997.*
 - *Participated at the Science Extravaganza at Guilford Middle School. April 17, 1997.*
 - *Voluntary service at the Greensboro Urban Ministries, and Participant of the Crop Walk 97.*

CITATIONS

The following are excerpts from letters from colleagues, coworker's university, and government officials and former students

"The allocation committee awarded Dr. Solomon Billing high performance computing resources... the allocation of resources to a faculty member by the Academic Allocations Committee is a clear testimony to the quality of contributions which they are making to your university." **Dr. John H. Harrison, IV: Vice President, High Performance Computing (1996).**

"I appreciate all you do to encourage the continuing studies of America's youth." **Margaret Spellings, Secretary of Education, 2006**

"Once again, you have brought distinction to the University" **Dr. Carolyn Meyers, Provost, NCA&T (2001)**

"Congratulations on your recent NSF Partnership for International Research and education Award. Considering the competition, that is quite a feat! But knowing you as I do, it's a piece of cake." **Dr. Carolyn Meyers, Provost NCA&T (2005)**

"Your solid work continues to make a difference. I am very proud of your contributions." **Dr. James C. Renick, Chancellor, NCA&T (2003)**

"Bililign's work on the experimental study of gas-phase metal-hydrogen reaction dynamics using laser pump-probe technique led to significant new insight into alkali metal-atom-hydrogen reaction dynamics. His work on the spin-orbit predissociation dynamics of metal-rare gas van der Waals molecules has led to important breakthroughs in understanding of this class of processes." **Professor Paul D. Kleiber: Director, Optical Science and Technology Center, University of Iowa.**

"Solomon was able to draw on his considerable experimental expertise from his own previous

research at the University of Iowa, Utah and Los Alamos. He quickly mastered the apparatus and with the help of a graduate student was able to generate and interpret an immense quantity of data.” **Dr. John Miller: Head: Biochemistry and Biophysics Section, ORNL.**

“Bililign has been awarded a highly competitive JILA Visiting Fellowship for next year at the University of Colorado, as evidence of the significance of his research efforts.” **Prof. W. C. Stwalley: Head, Department of Physics, University of Connecticut.**

“Bililign started a very respectful research program at the department by building a laser lab for chemical physics research. He obtained the necessary funds, designed the layout and commissioned a state-of-the-art research facility that is comparable by all standards to similar facilities at distinguished research and academic institutions.” **Dr. R. Sawafta: Director of Technology & Automation, TransTech Pharma.**

“Dr. Bililign’s peers have judged his research to be of the highest quality in two ways: by publications of his research results in prestigious reviewed journals and by continued funding of his research program. NCA&T has a research gem in Dr. Bililign.” **Dr. Thomas Sandin: Professor of Physics NCA&T.**

“Thanks a lot for the excellent document that you developed at short notice. Your leadership and professionalism are much appreciated. Solomon, a special thanks to you for leading this effort” **Dr.N. Radhakrishnan Vice Chancellor for Research & Economic Development**

“Dr. Bililign played a major role in the establishment of the recently established Master of Science degree program and enriched the graduate and undergraduate curricula with laser physics and spectroscopy courses.” **Dr. Caesar Jackson: Interim Dean, college of Arts and Sciences, NCA&T.**

“As a teacher he is regarded with the highest opinion among my peers and myself. His class often proved to be the most challenging while the most rewarding. His method of evaluation is fair and his expectations are poised just above the level that which his students perform, not to daunt or belittle, rather to motivate and encourage.” **Former Student**

“Every day that I arrive to work, I feel his presence looking over my shoulder ensuring that I maintain the standard of excellence he has set forth for everyone lucky enough to come in contact with him.” **Dr. Vernon Simmons-Former Student**

“Through time Bililign contributed a lot to the development of physics education and research in Ethiopia and abroad.” **Editor: Newsletter of the Ethiopian Physical Society.**

“My impression of Prof. Bililign is of a knowledgeable teacher, a committed researcher and a compassionate person” **Former Student**

“Because of you this degree has real value” **Former Student**

“I personally want to thank you so much for your help and encouragement through the years at NC A&T and beyond! My training in the Physics Department under your leadership has provided me with the foundation needed to grow!” **Jasmine Davenport Crenshaw, Former student**

A parent of a former student:

I am sincerely grateful to you and all the professors in the Physics' Department of our beloved

North Carolina Agricultural and Technical State University, who equipped my daughter, Lynnae Cennette Quick (May 2005) so richly for her career. I remain indebted to all of you!

Former Student

*I want to send a small note to say hi and I hope that things are good for you. I now work in the cellular transceiver industry for Fujitsu. My group is a small R&D organization that has produced world class technology. I manage the greater China region for business and technical advancement. **By the way, thank you for the rigorous Quantum instruction***

*“I have also been fortunate to have known Dr. Bililign on a personal level. He and his wonderful family have been there to support me during my transition as an international student. He has been a good counselor in personal matters and regarding my future scientific career. It is an asset to have him as counselor and colleague. I am inspired to follow in his footsteps and hope to become the type of exceptional role model he is.” **Former student***

*“Dr. Bililign taught me, at 20 years of age, how to actually assess a problem as a professional scientist would. I like to think that my preparation to be a scientist really began in his course. Because of what he taught me, I was able to successfully advance through various stages of professional development to arrive at the place I am now as a postdoctoral fellow at NASA Goddard.” **Former Student***

Dr. Bililign has been a huge part of my success within the last few years. He has exposed me to opportunities and career paths that I had never considered before. He has served as both a teacher and mentor and has always encouraged the potential that he saw in me, even when I was ready to give up.

Former Student

APPENDIX I- Proposals submitted.

NSF Proposals

2100708	NCAT	Excellence in Research: Biomass burning aerosol- molecular level characterization of aging conditions on optical and chemical properties	Awarded	07/06/2021	10/03/2020	\$869,910
2138096	NCAT	HBCU-Excellence in Research: Radiative Effects of Biomass Burning Aerosols Laboratory and Field Measurements and Modeling of Climate and Health Impacts	Awarded	06/28/2021	06/15/2021	\$38,229
2133628	GTECH	NSF Engineering Research Center (ERC) for Urban Thermal Justice (UTJ)	Pending	05/08/2021	05/07/2021	\$26,000,000
2100429	GTECH	NSF Engineering Research Center for Justice for Thermal Urban Environments (JusTUrE)	Invited	02/03/2021	10/02/2020	\$2
2119860	NCAT	GP-UP: Enhancing Recruitment and Retention of Underrepresented Minorities in Atmospheric Sciences at NCAT	Pending	01/27/2021	01/26/2021	\$349,793
2110137	NCAT	HBCU-Excellence in Research: Radiative Effects of Biomass Burning Aerosols Laboratory and Field Measurements and Modeling of Climate and Health Impacts	Awarded	12/18/2020	11/23/2020	\$53,856
2022899	NCAT	Collaborative Research: GP-UP: Enhancing the recruitment and retention of URM in atmospheric Sciences at NCAT	Declined	09/21/2020	02/13/2020	\$462,774
1936961	NCAT	GP-EXTRA:Pathways to atmospheric science through immersion in geoscience research	Awarded	12/09/2019	06/03/2019	\$90,133
1911461	NCAT	Collaborative Research: GP-EXTRA-Enhancing Pathways to Atmospheric Sciences Through Collaborative Asynchronous Research and Mentoring	Declined	07/12/2019	11/19/2018	\$420,273
1918586	GTECH	NSF Engineering Research Center for Responsive Control of Urban thermal Environments (ResCUE)	Not Invited	04/13/2019	01/16/2019	\$2
1848137	UT	Broadening Participation of Underrepresented Minorities in Study & Research Abroad	Awarded	09/07/2018	07/20/2018	\$95,400
1831013	NCAT	Excellence in Research-Radiative Effects of Biomass Burning Aerosols-Laboratory and Field Measurements and Modeling of Climate and Health Impacts?	Awarded	08/23/2018	02/26/2018	\$1,000,000
1600415	NCAT	GP-EXTRA:Pathways to atmospheric science through immersion in geoscience research	Awarded	08/12/2016	10/05/2015	\$477,594
1559308	NCAT	IRES-International Research in Geosciences (Earth and Atmospheric Sciences) in Ethiopia	Awarded	06/10/2016	08/17/2015	\$249,898

1611243	NCAT	IMPLEMENTING RESEARCH-BASED INSTRUCTIONAL STRATEGIES WITH GROWTH MINDSET IN PHYSICS TEACHING.	Declined	03/13/2016	11/02/2015	\$299,999
1559906	NCAT	REU Site-Collaborative Earth system science research- Atmospheric modeling, sensing and societal impacts	Declined	02/17/2016	08/25/2015	\$399,032
1555479	NCAT	Studies of Optical and Chemical Properties of Biomass Burning Aerosols	Awarded	02/03/2016	07/27/2015	\$513,443
1545408	NCAT	NRT: Interdisciplinary Approach to Hurricane Studies	Declined	10/27/2015	05/06/2015	\$2,962,641
1540655	NCAT	GP-EXTRA:Improving and enhancing the pathways to atmospheric sciences at NCA&T	Declined	08/13/2015	03/16/2015	\$482,889
1503827	NCAT	PIRE- River Nile Basin -The Impact of Climate Change on Hydrology- A Comprehensive Measurement and Modeling Study	Not Invited	05/12/2015	10/20/2014	\$2
1500016	NCAT	Multiphase Chemistry and Uptake of Major Pyrogenic Species	Declined	04/29/2015	10/01/2014	\$559,905
1464292	NCAT	Laboratory measurement of optical properties of black carbon and brown carbon aerosols emitted by biomass burning	Declined	04/21/2015	09/24/2014	\$610,383
1432941	NCAT	Determining the rates for uptake and processing of significant pyrogenic species in the aqueous and organic phase in the atmosphere	Declined	10/07/2014	02/05/2014	\$611,088
1440950	NCAT	Developing Innovative STEM Teacher Preparation through a Collaboration among NCA&T Science and Mathematics Programs, Guilford County Schools and North Carolina New Schools	Declined	09/12/2014	03/18/2014	\$7,280,900
1432273	NCAT	GEO IUSE Ideas Lab	Not Invited	09/09/2014	02/04/2014	\$2
1436073	NCAT	Targeted Infusion Project: Transforming Introductory Physics Courses Using the Scale-Up Active Learning Model	Declined	07/24/2014	02/18/2014	\$399,992
1357727	NCAT	IRES-International research in atmospheric and hydrological sensing and modeling and societal impacts of climate change in Lake Tana Basin - Ethiopia	Declined	03/27/2014	08/19/2013	\$250,000
1360275	NCAT	WSC-Category 2- Collaborative water sustainability and climate change studies along the River Nile and lake basins	Declined	03/11/2014	09/10/2013	\$3,058,495
1342456	NCAT	DETERMINING THE FATE OF ISOCYANIC ACID (HNCO) IN THE ATMOSPHERE	Declined	10/21/2013	04/30/2013	\$351,131
1338759	NCAT	RCN-SEES--Earth System Science and Engineering Research and Education Collaboration Network (ESSERECN)	Declined	07/24/2013	03/04/2013	\$749,833

1262876	NCAT	REU Site: Collaborative Earth System Science research- Atmospheric modeling, sensing and societal impacts	Awarded	04/15/2013	09/12/2012	\$361,739
1305771	NCAT	Determining the optical properties of atmospheric aerosols in the visible region, using a particle extinction integrating cavity output spectrometer (PEICOS)	Declined	03/15/2013	10/26/2012	\$762,557
1261019	NCAT	IRES: International Research Experience in Geosciences-Geophysics and Atmospheric Physics in Ethiopia	Declined	03/12/2013	08/20/2012	\$243,898
1250026	NCAT	IGERT in Extreme Weather and Climate Change	Declined	12/21/2012	07/02/2012	\$3,297,697
1243453	NCAT	PIRE RIVER NILE BASIN (RNB)-CLIMATE CHANGE AND SUSTAINABLE WATER MANAGEMENT	Declined	07/31/2012	05/15/2012	\$7,960,049
1203570	NCAT	PIRE RIVER NILE BASIN (RNB)-CLIMATE CHANGE AND SUSTAINABLE WATER MANAGEMENT	Invited	02/13/2012	10/17/2011	\$2
1157542	NCAT	Catalyzing New International Collaborations in the Study of Atmospheric Aerosols	Declined	02/10/2012	08/31/2011	\$45,545
1035729	NCAT	INDIVIDUAL- Nomination of Dr. Solomon Bilign for the Presidential Award for Excellence in Mentoring	Awarded	01/26/2012	03/11/2010	\$25,000
0964194	NCAT	US-Ethiopia collaboration: Research in Earth and atmospheric sciences	Declined	08/20/2010	08/28/2009	\$149,999
0939483	NCAT	The Anthropocene Science Center (ASC)	Declined	08/20/2009	04/30/2009	\$25,000,000
0914415	NCAT	Collaborative Research: Track 2 - Enhancing diversity in the Geosciences through the AfricaArray Educational Alliance	Awarded	08/17/2009	12/10/2008	\$671,587
0918165	NCAT	Kinetics and Thermochemistry Studies of Carboxylic and Other Acids Using Negative Ion Proton Transfer Mass Spectrometry (NI-PTMS)	Awarded	07/14/2009	01/06/2009	\$10,000
0931156	PENNS	PIRE: AfricaArray II - Understanding African Superplume Dynamics, Expanding African Partnerships, and Building a Diverse Geosciences Workforce	Not Invited	07/09/2009	02/26/2009	\$2
0902408	PENNS	STC: The Anthropocene Science Center (ASC)	Invited	01/30/2009	10/14/2008	\$24,999,863
0836280	NCAT	RIVER NILE BASIN CLIMATE CHANGE	Returned	09/11/2008	05/08/2008	\$36,500
0803016	NCAT	Kinetics and Thermochemistry Studies of Carboxylic and Other Acids Using Negative Ion Proton Transfer Mass Spectrometry (NI-PTMS)	Awarded	05/08/2008	10/17/2007	\$536,633
0644911	NCAT	Cluster Photochemistry: Formation, reactions, and fragmentation dynamics with applications to catalysis	Declined	01/11/2007	07/19/2006	\$882,055

P24-0438	NCAT	Chemical Composition, Optical Properties and Photosensitized Reaction Potential of African Biomass Burning Aerosols - Laboratory and Ambient Measurements	Declined			\$745,000
P24-0284	NCAT	Ideas Lab: Advancing Research Capacity at NCAT	awarded			
NSF#2133628	NCAT	NSF Engineering Research Center (ERC) for Urban Thermal Justice (UTJ)	Declined	9/1/22	8/31/27	\$25,00,000
NSF-2115293	NCAT	Urban Watersheds and Stream Corridors	Funded	09/2021-	08/2024	\$15,000

0622441	NCAT	IRES: International Research in Earth, Atmospheric and Space Sciences in Ethiopia.	Awarded	09/25/2006	02/09/2006	\$149,914
0624871	NCAT	EDUCATION RESEARCH GRANT: Identifying models that work in increasing STEM graduates at HBCU's	Declined	08/29/2006	02/27/2006	\$1,049,993
0543367	NCAT	Energy transfer in intermetallic vapor mixture and spectroscopy of bound intermetallic excimers	Declined	01/13/2006	07/11/2005	\$292,076
0545788	NCAT	Gas-Phase Studies of Nanocluster Photochemistry, Nanocatalysis and Nanoalloys	Declined	01/13/2006	07/18/2005	\$640,376
0523652	UNCC	IGERT: Multidisciplinary Communities in Photonics Research	Not Invited	05/12/2005	02/04/2005	\$2
0449062	NCAT	Photochemistry within nanoclusters: Investigation into the formation, structure, and reactivity of gas-phase metal cluster ions and nanoalloys	Declined	03/01/2005	07/21/2004	\$625,402
0436930	UNCC	IGERT: Metamaterials Driven Photonics Research	Not Invited	08/25/2004	04/29/2004	\$3,118,168
0422821	NCAT	INTERNATIONAL COLLABORATION IN RESEARCH AND EDUCATION WITH ADDIS ABABA UNIVERSITY (ETHIOPIA)	Awarded	08/11/2004	01/30/2004	\$14,964
0302967	NCAT	Collaborative Research: Enhancing Diversity in Geosciences in North Carolina	Awarded	08/12/2003	10/17/2002	\$449,988
0317836	NCAT	Acquisitions of a multi-source reflectron time-of-flight mass spectrometer	Awarded	07/21/2003	01/15/2003	\$447,635
0323889	NCAT	Quenching of Excited States of Lithium by H ₂ , D ₂ , N ₂ , Alkane and Alkene Hydrocarbons: Kinetics and Dynamics	Awarded	04/18/2003	02/04/2003	\$6,000
0131115	NCAT	Quenching of excited states of lithium by H ₂ , D ₂ , N ₂ , alkane and alkene hydrocarbons: Kinetics and Dynamics	Awarded	02/20/2002	07/09/2001	\$285,738
9975896	UW	Constructing Thin Film and Photoemission Facility	Declined	07/09/1999	01/29/1999	\$458,000
9974552	NCAT	Theoretical Studies of the Interaction of Metals and Metal Clusters with Small Molecules	Declined	06/04/1999	01/07/1999	\$87,988
9871891	UTKN OX	Size Dependent Chemistry with Metal Nanoclusters	Declined	06/22/1998	02/16/1998	\$597,722
9733744	NCAT	Effects of Electronic Alignment in Laser Induced M-H ₂ and M-CH ₄ Reactions	Awarded	02/24/1998	07/18/1997	\$476,513
	NCAT	Ab Initio Studies of Metal-Rare Gas and Metal-Hydrogen Interaction Potentials	Awarded	9/1/1996	8/31/1999	\$137,628

ALL PROPOSALS (RAMSES)

Submitted	Prop No.	Project Name	Lead PI	Sponsor	Status
April 15 1999 00:00:00	99-0239	SUPPLEMENT TO NSF AWARD #9733744	SOLOMON BILILIGN	National Science Foundation (NSF)	Funded
December, 09 1998 00:00:00	99-0117	THEORETICAL STUDIES OF THE INTERACTION OF METAL AND METAL CLUSTERS WITH SMALL MOLECULES	SOLOMON BILILIGN	National Science Foundation (NSF)	Proposal Approved
February, 12 1998 00:00:00	98-0190	SIZE DEPENDENT CHEMISTRY WITH NANOCLUSTERS	SOLOMON BILILIGN	University of Tennessee at Knoxville (UTK)	Not Funded
February, 10 1998 00:00:00	98-0187	HIGH ENERGY DENSITY METASTABLE MATERIALS	SOLOMON BILILIGN	UNIVERSITY OF CONNECTICUT	Not Funded
October, 28 1997 00:00:00	98-0088	A PROPOSAL TO ESTABLISH A LASER FACILITY FOR MATERIALS RESEARCH	SOLOMON BILILIGN	DOD DA Army Research Office (ARO)	Not Funded
July, 22 1997 00:00:00	98-0008	EFFECTS OF ELECTRONICS ORBITAL ALIGNMENT IN LASER INDUCED METAL-H2 AND METAL-CH4 REACTIONS	SOLOMON BILILIGN	Department of Energy (DOE)	Withdrawn
July, 10 1997 00:00:00	98-0003	EFFECTS OF ELECTRONIC ORBITAL ALIGNMENT IN LASER INDUCED METAL-H2 AND METAL-CH4 REACTIONS	SOLOMON BILILIGN	National Science Foundation (NSF)	Funded
April, 11 1997 00:00:00	97-0262	STUDY OF THE PHOTOCHEMISTRY OF METAL CVD (PHOTOCHEMICAL LASER DEPOSITION) PRECURSORS IN CLUSTER ENVIRONMENT	SOLOMON BILILIGN	Research Corporation for Science Advancement (Rescorp)	Not Funded
November, 14 1996 00:00:00	97-0112	STUDY OF THE PHOTOCHEMISTRY OF METAL CVD (PHOTOCHEMICAL LASER DEPOSITION) PRECURSORS IN CLUSTER ENVIRONMENT	SOLOMON BILILIGN	Research Corporation for Science Advancement (Rescorp)	Not Funded
October, 11 1996 00:00:00	97-0066	STUDIES OF ALIGNMENT EFFECTS IN LASER INDUCED REACTIVE COLLISIONS	SOLOMON BILILIGN	National Science Foundation (NSF)	Not Funded
December, 11 1995 00:00:00	96-0126	THEORETICAL STUDIES OF METAL-RARE-GAS AND METAL-2 POTENTIALS	SOLOMON BILILIGN	ACS Petroleum Research	Not Funded

October, 23 1995 00:00:00	96-0084	TRANSITION STATE SPECTROSCOPY AND DYNAMICS OF LASER INDUCED REACTIVE COLLISIONS	SOLOMON BILILIGN	DOD DA Army Research Office (ARO)	Not Funded
October, 04 1995 00:00:00	96-0054	LASER SPECTROSCOPY, ENERGY TRANSFER AND DYNAMICS OF LASER INDUCED REACTIONS	SOLOMON BILILIGN	Department of Energy (DOE)	Not Funded
October, 02 1995 00:00:00	96-0053	STUDIES OF LASER INDUCED REACTIVE COLLISIONS	SOLOMON BILILIGN	National Science Foundation (NSF)	Not Funded
June, 19 1995 00:00:00	95-0298	INTER-ATOMIC POTENTIAL: AN ABINITIO STUDY	SOLOMON BILILIGN	ACS Petroleum Research	Withdrawn
May, 16 1995 00:00:00	95-0278	AB INITIO STUDIES OF METAL-RARE-GAS AND METAL-HYDROGEN INTERACTION POTENTIALS	SOLOMON BILILIGN	National Science Foundation (NSF)	Funded
October, 03 1994 00:00:00	95-0069	THEORETICAL INVESTIGATION OF THE INTERAC	SOLOMON BILILIGN	National Science Foundation (NSF)	Not Funded
April, 06 2021 00:00:00	21-0596	Engineering Research Center	Solomon Bililign	Georgia Institute of Technology - The Georgia Tech Research Corporation (GTRC)	Proposal Approved
February, 15 2021 00:00:00	21-0487	ENCOMPASS Network:	Solomon Bililign	UNC-CH Gillings School of Public Health	Proposal Approved
January, 12 2021 00:00:00	21-0432	GP-UP: Enhancing	Jing Zhang	National Science Foundation (NSF)	Proposal Approved
December, 17 2020 00:00:00	21-0402	Urban Watersheds and Stream Corridors	Manoj Jha	University of Georgia (UGA)	Proposal Approved
October, 31 2020 00:00:00	21-0310	GP-UP: Enhancing Recruitment and Retention	Jing Zhang	National Science Foundation (NSF)	Proposal Approved
October, 05 2020 00:00:00	21-0269	NSF-ERC	Solomon Bililign	National Science Foundation (NSF)	Proposal Approved
September, 23 2020 00:00:00	21-0199	Excellence in Research: Biomass burning aerosol	Solomon Bililign	National Science Foundation (NSF)	Funded/Anticipated

September 21, 2020, 00:00:00	21-0198	Center for Environmental Modeling and Measurement	Solomon Bililign	DOD Department of the Army (DA)	Proposal Approved
August 28 2020 00:00:00	21-0165	Mountain Aerosol Network (NASA-MAN)	Solomon Bililign	Appalachian State University (ASU)	Proposal Approved
August 19 2020 00:00:00	21-0130	Acquisition of a PAX and Gas analyzers	Solomon Bililign	Department of Defense (DOD)	Proposal Approved
July, 10 2020 00:00:00	21-0020	Biomass Burning Aerosols-	Solomon Bililign	NSF Directorate for Education and Human Resources (EHR)	Not Funded
May, 21 2020 00:00:00	20-0597	International Network	Solomon Bililign	Columbia University	Funded
March, 14 2020 00:00:00	20-0477	Novel Methods for in vitro	Solomon Bililign	University of North Carolina at Chapel Hill (UNC-CH)	Not Funded
March, 14 2020 00:00:00	20-0476	Deployment of low-cost sensors	Solomon Bililign	Agency for International Development (USAID)	Not Funded
February, 04 2020 00:00:00	20-0409	GEOPaths-UP-NCAT	Solomon Bililign	National Science Foundation (NSF)	Not Funded
	20-0350	GEOPaths-UP	Solomon Bililign	National Science Foundation (NSF)	Withdrawn
December, 19 2019 00:00:00	20-0349	GEOPaths-UP	Solomon Bililign	National Science Foundation (NSF)	Not Funded
November, 07 2018 00:00:00	19-0186	Title: GP-EXTRA-- Enhancing Pathways to Atmospheric Sciences	Solomon Bililign	National Science Foundation (NSF)	Funded/Anticipated
September, 13 2018 00:00:00	19-0104	Geopath- Extra - Enhancing pathways to Atmospheric Sciences programs	Solomon Bililign	National Science Foundation (NSF)	Not Funded
July, 26 2018 00:00:00	19-0052	Workshop on diversity in international research	Solomon Bililign	NSF International	Not Funded
June, 13 2018 00:00:00	18-0500	Toxicity of Complex Aerosols from Combustion	Solomon Bililign	UNC-CH Gillings School of Public Health	Funded
April, 11 2018 00:00:00	18-0413	DCL-EAGER: An NCA&T Case Study	Gregory Monty	National Science Foundation (NSF)	Not Funded
April, 02 2018 00:00:00	18-0400	NSF INCLUDES Alliance: Bio+	Gregory Monty	National Science Foundation (NSF)	Not Funded

February, 19 2018 00:00:00	18-0314	Radiative properties of biomass burning aerosols	Solomon Bililign	National Science Foundation (NSF)	Funded/Anticipated
December, 13 2017 00:00:00	18-0212	Radiative Effects of Biomass Burning Aerosols	Solomon Bililign	National Science Foundation (NSF)	Not Funded
May, 26 2017 00:00:00	17-0480	The US Army Center of Excellence for STEM at NCAT	Robin Cogger	Department of Defense (DOD)	Not Funded
March, 20 2017 00:00:00	17-0362	Broadening Participation Research Center	Margaret Kanipes-Spinks	National Science Foundation (NSF)	Not Funded
November, 11 2016 00:00:00	17-0090	Secondary Organic Aerosols	Solomon Bililign	Department of Energy (DOE)	Not Funded
July, 12 2016 00:00:00	17-0005	Bringing NASA air quality science down to Earth	Solomon Bililign	Appalachian State University (ASU)	Not Funded
March, 16 2016 00:00:00	16-0321	NOAA-CASMER	Solomon Bililign	NOAA Office of Education	Not Funded
October, 29 2015 00:00:00	16-0152	RESEARCH-BASED INSTRUCTIONAL STRATEGIES	Solomon Bililign	National Science Foundation (NSF)	Not Funded
September, 27 2015 00:00:00	16-0104	NSF-Geopaths Extra	Solomon Bililign	National Science Foundation (NSF)	Funded
August, 17 2015 00:00:00	16-0050	REU-Site-Collaborative Earth System Science	Solomon Bililign	National Science Foundation (NSF)	Not Funded
August, 10 2015 00:00:00	16-0044	International research Experience	Solomon Bililign	National Science Foundation (NSF)	Funded/Anticipated
July, 21 2015 00:00:00	16-0027	Optical and chemical properties of Aerosols	Solomon Bililign	National Science Foundation (NSF)	Funded
June, 12 2015 00:00:00	15-0517	Smoke and Obscuration Science	Solomon Bililign	Department of Defense (DOD)	Not Funded
April, 30 2015 00:00:00	15-0439	NIAHS	Yuh Lang Lin	National Science Foundation (NSF)	Not Funded
March, 24 2015 00:00:00	15-0382	NIAHS	Yuh Lang Lin	National Science Foundation (NSF)	Not Funded
March, 09 2015 00:00:00	15-0345	GEOPATHS-EXTRA-Improving and enhancing the pathways to	Solomon Bililign	National Science Foundation	Not Funded

		atmospheric sciences at NCA&T		(NSF)	
January, 04 2015 00:00:00	15-0258	GEOPATHS-EXTRA-	Solomon Bililign	National Science Foundation (NSF)	Not Funded
December, 08 2014 00:00:00	15-0232	Aerosol research	Solomon Bililign	Howard University	Not Funded
October, 14 2014 00:00:00	15-0133	River Nile Basin (PIRE-RNB):	Solomon Bililign	National Science Foundation (NSF)	Not Funded
September, 18 2014 00:00:00	15-0094	Multiphase Chemistry and Uptake	Solomon Bililign	National Science Foundation (NSF)	Not Funded
September, 18 2014 00:00:00	15-0085	Aerosol optical properties	Solomon Bililign	National Science Foundation (NSF)	Not Funded
July, 30 2014 00:00:00	15-0020	biomass aerosol optical properties	Solomon Bililign	NASA Science Mission Directorate (SMD)	Not Funded
June, 15 2014 00:00:00	14-0478	NRT-DEWCS	Yuh Lang Lin	National Science Foundation (NSF)	Not Funded
May, 14 2014 00:00:00	14-0425	NRT-DEWCS	Yuh Lang Lin	National Science Foundation (NSF)	Not Funded
March, 12 2014 00:00:00	14-0327	Developing Innovative STEM Teacher Preparation	Solomon Bililign	National Science Foundation (NSF)	Not Funded
February, 16 2014 00:00:00	14-0297	Physics SCALE-UP	Abdellah Ahmidouch	NSF Directorate for Education and Human Resources (EHR)	Not Funded
February, 12 2014 00:00:00	14-0283	Re-design STEM courses	Solomon Bililign	Association of American Colleges and Universities (AACU)	Not Funded
January, 29 2014 00:00:00	14-0259	Determining the rates for uptake	Solomon Bililign	National Science Foundation (NSF)	Not Funded
January, 29 2014 00:00:00	14-0255	GEO IUSE Ideas Lab	Solomon Bililign	National Science Foundation (NSF)	Not Funded
January, 02 2014 00:00:00	14-0213	Aerosol Optical Properties	Solomon Bililign	DOD DA Army Research	Not Funded

				Laboratory (ARL)	
December, 16 2013 00:00:00	14-0197	Physics SCALE-UP	Abdellah Ahmidouch	National Science Foundation (NSF)	Not Funded
September, 02 2013 00:00:00	14-0064	Water Sustainability and Climate	Solomon Bililign	National Science Foundation (NSF)	Not Funded
August, 07 2013 00:00:00	14-0029	International Research Experience	Solomon Bililign	National Science Foundation (NSF)	Not Funded
June, 24 2013 00:00:00	13-0514	K-12 STEM outreach	Solomon Bililign	DOD DN Office of Naval Research (ONR)	Not Funded
June, 28 2013 00:00:00	13-0494	Robust Instrumentation (CHL-10)	Ram Mohan	DOD DA Army Corps of Engineers	Not Funded
June, 28 2013 00:00:00	13-0493	Robust Instrumentation (CERL-32)	Ram Mohan	DOD DA Army Corps of Engineers	Not Funded
June, 28 2013 00:00:00	13-0492	Robust Instrumentation (ITL-1)	Ram Mohan	DOD DA Army Corps of Engineers	Not Funded
June, 28 2013 00:00:00	13-0460	Robust Instrumentation (CHL-13)	Ram Mohan	DOD DA Army Corps of Engineers	Not Funded
April, 24 2013 00:00:00	13-0401	DETERMINING THE FATE OF ISOCYANIC ACID (HNCO) IN THE ATMOSPHERE	Solomon Bililign	National Science Foundation (NSF)	Not Funded
February, 20 2013 00:00:00	13-0301	Research collaboration Network	Solomon Bililign	National Science Foundation (NSF)	Not Funded
October, 22 2012 00:00:00	13-0149	Determining the optical properties of atmospheric aerosols	Solomon Bililign	National Science Foundation (NSF)	Not Funded
September, 05 2012 00:00:00	13-0093	REU-Site: Collaborative Earth System Science Research	Solomon Bililign	National Science Foundation (NSF)	Funded
August, 14 2012 00:00:00	13-0061	International Research	Solomon Bililign	National Science Foundation (NSF)	Not Funded
June, 25 2012 00:00:00	12-0492	IGERT-EWCC	Yuh Lang Lin	National Science Foundation (NSF)	Not Funded
April, 26 2012 00:00:00	12-0483	Fieldable CRDS	Marc Fiddler	United States Environmental Protection	Not Funded

				Agency (EPA)	
May, 06 2012 00:00:00	12-0480	PIRE-RIVER NILE BASIN (PIRE-RNB)	Solomon Bililign	National Science Foundation (NSF)	Not Funded
February, 23 2012 00:00:00	12-0373	PAESMEM	Solomon Bililign	National Science Foundation (NSF)	Funded
October, 10 2011 00:00:00	12-0149	RIVER NILE BASIN (RNB-PIRE)	Solomon Bililign	National Science Foundation (NSF)	Not Funded
August, 25 2011 00:00:00	12-0063	Catalyzing New International Collaborations in studies of Atmospheric Aerosols	Solomon Bililign	National Science Foundation (NSF)	Not Funded
March, 17 2011 00:00:00	11-0371	Climate Change Education	Keith Schimmel	NASA Headquarters Federal Acquisition Regulation (FAR)	Funded
November, 01 2010 00:00:00	11-0176	INTERDISCIPLINARY SCIENTIFIC ENVIRONMENTAL TECHNOLOGY	Solomon Bililign	Educational Partnership Program	Not Funded
July, 25 2010 00:00:00	11-0023	Optical properties of Aerosols	Solomon Bililign	DOD DA Army Research Office (ARO)	Funded
March, 09 2010 00:00:00	10-0355	Presidential Awards for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM)	Solomon Bililign	National Science Foundation (NSF)	Not Funded
September, 20 2009 00:00:00	10-0116	NASA K-12 CAN	Shawn Watlington	Guilford County Schools	Funded
September, 14 2009 00:00:00	10-0099	Interdisciplinary Graduate Program Scholarships	Keith Schimmel	National Science Foundation (NSF)	Withdrawn
August, 27 2009 00:00:00	10-0077	US-Ethiopia collaboration	Solomon Bililign	National Science Foundation (NSF)	Not Funded
August, 07 2009 00:00:00	10-0025	NIST Construction Grant	Solomon Bililign	DOC National Institute of Standards and Technology (NIST)	Not Funded
May, 07 2009 00:00:00	09-0456	Kinetics and Thermochemistry Studies of Carboxylic and Other Acids Using Negative Ion	Solomon Bililign	National Science Foundation (NSF)	Not Funded

		Proton Transfer Mass Spectrometry (NI-PTMS)			
April, 30 2009 00:00:00	09-0442	PIRE: Africa array: Imaging the African Superplume, Building Partnership and Enhancing diversity in geosciences	Solomon Bililign	Pennsylvania State University	Not Funded
April, 13 2009 00:00:00	09-0385	The Anthropocene Science Center	Solomon Bililign	Pennsylvania State University	Not Funded
December, 04 2008 00:00:00	09-0202	Opportunities for Enhancing Diversity in the Geosciences (OEDG)	Solomon Bililign	National Science Foundation (NSF)	Funded
October, 23 2008 00:00:00	09-0155	NASA GCCE	Keith Schimmel	National Aeronautics and Space Administration (NASA)	Not Funded
June, 30 2008 00:00:00	08-0346	Lin NASA Proposal for Sol 08-URC-0015	Yuh Lang Lin	National Aeronautics and Space Administration (NASA)	Not Funded
June, 25 2008 00:00:00	08-0272	OISE - International Plan & Workshops	Solomon Bililign	National Science Foundation (NSF)	Not Funded
October, 17 2007 00:00:00	08-0078	Kinetics and Thermochemistry Studies of Carboxylic and Other Acides Using Negative Ion Proton Transfer Mass Spectrometry (NI-PTMS)	Solomon Bililign	National Science Foundation (NSF)	Funded
April, 30 2007 00:00:00	07-0291	ERC: INTEGRATED REMOTE IN SITU SENSING SYSTEM (IRISS)	SOLOMON BILILIGN	UNIVERSITY OF COLORADO	Not Funded
July, 17 2006 00:00:00	07-0017	CLUSTER PHOTOCHEMISTRY; FORMATION, INTRACLUSTER REACTIONS AND FRAGMENTATION DYNAMICS WITH APPLICATIONS TO CATALYSIS	SOLOMON BILILIGN	National Science Foundation (NSF)	Not Funded
March, 01 2006 00:00:00	06-0261	EDUCATION RESEARCH: IDENTIFYING MODELS THAT WORK IN INCREASING STEM GRADUATES AT HBCU'S	SOLOMON BILILIGN	National Science Foundation (NSF)	Proposal Approved
February, 01 2006 00:00:00	06-0231	(IRES): INTERNATIONAL RESEARCH IN EARTH, ATMOSPHERIC AND SPACE SCIENCES IN ETHIOPIA	SOLOMON BILILIGN	National Science Foundation (NSF)	Funded

October, 14 2005 00:00:00	06-0115	EPP 2006: NOAA INTERDISCIPLINARY SCIENTIFIC ENVIRONMENTAL TECHNOLOGY (ISET) COOPERATIVE RESEARCH AND EDUCATION CENTER	Solomon Bililign	Educational Partnership Program	Funded
July, 21 2005 00:00:00	06-0024	THE SLOAN A&T PHYSICS SCHOLARS PROGRAM PREPARING UNDERGRADUATES FOR A PH.D IN THE SCIENCES	SOLOMON BILILIGN	Alfred P Sloan Foundation	Funded
July, 14 2005 00:00:00	06-0013	GAS-PHASE STUDIES OF NANOCLUSTER PHOTOCHEMISTRY, NANOCATLYSIS AND NANOALLOYS	SOLOMON BILILIGN	National Science Foundation (NSF)	Not Funded
July, 11 2005 00:00:00	06-0008	ENERGY TRANSFER INTERMETALLIC VAPOR MIXTURE AND SPECTROSCOPY OF BOUND INTERMETALLIC EXCIMERS	SOLOMON BILILIGN	National Science Foundation (NSF)	Not Funded
March, 04 2005 00:00:00	05-0255	AFRICANARRAY: IMAGING THE AFRICAN SUPERPLUME, BUILDING AFRICAN PARTNERSHIP AND ENHANCING DIVERSITY IN THE GEOSCIENCES	SOLOMON BILILIGN	Pennsylvania State University	Funded
July, 21 2004 00:00:00	05-0014	PHOTOCHEMISTRY WITHIN NANOCCLUSERS: INVESTIGATION INTO THE FORMATION, STRUCTURE, AND REACTIVITY OF GAS- PHASE METAL CLUSTER IONS AND NANOALLOYS	SOLOMON BILILIGN	National Science Foundation (NSF)	Not Funded
January, 30 2004 00:00:00	04-0240	INTERNATIONAL COLLABORATION IN RESEARCH AND EDUCATION WITH ADDIS ABABA UNIVERSITY (ETHOPIA)	SOLOMON BILILIGN	National Science Foundation (NSF)	Funded
February, 04 2003 00:00:00	03-0262	QUENCHING OF EXCITED STATES OF LITIUM BY H ₂ , D ₂ , N ₂ AND ALKNE AND ALKENE HYDROCARBONS: KINETICS AND DYNAMICS	SOLOMON BILILIGN	National Science Foundation (NSF)	Funded
January, 10 2003 00:00:00	03-0203	ACQUISITION OF A MULTI SOURCE REFLECTRON TIME OF FLIGHT MASS SPECTROMETER	SOLOMON BILILIGN	National Science Foundation (NSF)	Funded
July, 20 2001 00:00:00	02-0029	NANOCHEMISTY: STUDY OF SIZE DEPENDENT CHEMICAL REACTIONS WITHIN CLUSTERS	SOLOMON BILILIGN	DOD Department of the Air Force (DAF)	Not Funded

July, 18 2001 00:00:00	02-0028	NANOCHEMISTRY STUDY OF SIZE DEPENDENT CHEMICAL REACTIONS WITHIN CLUSTERS	SOLOMON BILILIGN	Department of Energy (DOE)	Proposal Approved
July, 02 2001 00:00:00	02-0002	QUENCHING OF EXCITED STATES OF LITHIUM BY H ₂ , D ₂ , N ₂ AND ALKANE AND ALKENE HYDROCARBONS: KINETICS AND DYNAMICS	SOLOMON BILLION	National Science Foundation (NSF)	Funded
June, 09 2000 00:00:00	00-0340	US FRENCH COLLABORATION IN EXPERIMENTAL AND THEORETICAL STUDY OF THE LI + H ₂ AND LI + CH ₄ COLLISIONS	SOLOMON BILILIGN	National Science Foundation (NSF)	Withdrawn
April 07 2000 00:00:00	00-0279	ITR/COMPUTATIONAL GEOMETRY FOR STRUCTURAL BIOLOGY AND BIOINFORMATICS	SOLOMON BILILIGN	DUKE UNIVERSITY	Funded
February 04 2000 00:00:00	00-0195	NANOCHEMISTRY: STUDY OF CHEMICAL REACTIONS AND SIZE DEPENDENT CATALYSIS WITHIN CLUSTERS	SOLOMON BILILIGN	Department of Energy (DOE)	Not Funded
9/23-8/27	P23-0373	The Climate Resilience Center in Piedmont Triad of North Carolina (NC)	SOLOMON BILILIGN	Department of Energy (DOE)	Funded
2023	P23-0325	Microwave-Assisted Optical Fiber Loop Ring Down Spectroscopic System for Highly Sensitive Detection of Trace Hydrogen in Atmosphere	SOLOMON BILILIGN	Department of Energy (DOE)	Not Funded
11/24	P25-0316	Mobile Urban Aerosol Composition using a Robust Multi-pass Cell and Mid-infrared Fingerprint Region Spectroscopy	SOLOMON BILILIGN	Department of Energy (DOE)	Pending
2022	22-0589	URBAN INTEGRATED FIELD LABORATORY FOR THE ATLANTA-GREENSBORO "GREENLANTA" CLIMATE ARCHIPELAGO	SOLOMON BILILIGN	Department of Energy (DOE)	Not Funded
8/15/22- 2/29/24	DE- SC0023051	<i>Studies of optical and chemical properties of aged and fresh biomass burning absorbing aerosols for climate models</i>	SOLOMON BILILIGN	Department of Energy (DOE)	Funded

10/1/22-9/30/27	NASA-21-IPMSI21-0016	Ground based air quality and GHG monitoring to enable environmental justice in Central North Carolina Native American and African American Communities	Solomon Billign	NASA	Declined
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SUBMITTED AND DECLINED PROPOSALS

Belmont Forum Proposal: <https://www.belmontforum.org/> The Belmont Forum is an international partnership that mobilizes funding of environmental change research and accelerates its delivery to remove critical barriers

Title: East Africa Sustainable Training and Capacity-development for Localized Engaged Air Research (EAST-CLEAR)

Lead institution: IGSSA (Ethiopia),

Partners: Kenyatta University, North Carolina A&T Columbia University, University of North Carolina Chapel Hill, Ethiopian Federal EPA, Ethiopian Meteorological Institute, C-40, NOAA, Birmingham University Submitted August 2024

NERC/NSF- DECLINED- TO BE RE-SUMMITTED

Title: Study of East African Air Quality (SEAQUAL)-The total project costs are **£4,107,861**

Lead Institution: York University

Partners: Birmingham University, North Carolina A&T State University, University of North Carolina-Chapel Hill, George Mason University, Columbia University, NCAR, C-40, Federal EPA Submitted Nov. 2024

NSF-STC (Science and Technology Center)

Title: CRYSTAL: Center for Research at the tropical atmosphere-environment nexus: Yielding solutions through Sensing, Technology, novel AI, Knowledge Blending, and Learning in data-sparse environments:

Total Cost \$US 30, million

Lead institution: North Carolina University-Chapel Hill, Co-Lead- North Carolina A&T State University

Partners: Columbia, NCAR, University of Colorado, John Hopkins University, George Mason University, North Carolina State University with collaborators: AAU, Kenyatta University, Lund University, and industrial Partners - Aerodyne, Nikira, and Mitre. Unfunded International collaborators include Lund, Addis Ababa University, Kenyatta University, NASA-JPL, C40, Ethiopian EPA, PSI, Invited for full submission. Full proposal submitted June 2, 2025