

MOSES NTAM, Ph.D.

Ph.D. in Computational Physics

Associate Professor of Physics
Executive Director of Distance Education and Online Learning

Tuskegee University
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Tuskegee, Alabama
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[LinkedIn](#) | [University Profile](#)

EDUCATION

Ph.D. in Computational Physics | 2012

Auburn University

Dissertation: First-Principles Theoretical Study of Lattice Thermal Conductivity of Crystals and Earth Minerals at High Temperatures and Pressures

M.S. in Physics | 2009

Auburn University

Focus: Computational Methods in Physics

B.S. in Physics (Minor in Computer Science) | 2004

University of Buea, Cameroon

Graduated with First Class Honors

PROFESSIONAL EXPERIENCE

Associate Professor of Physics | May 2024 - Present

Tuskegee University

- Teaching physics courses and conducting research in computational physics
- Developing innovative approaches to physics education in traditional and online environments

Executive Director (Interim) | 2023 - Present

Office of Distance Education and Online Learning, Tuskegee University

- Leading digital transformation initiatives across the university
- Overseeing online education programs and strategic planning
- Managing the transition from Blackboard to Canvas Learning Management System

Quality Matters Coordinator | 2019 - 2022

Tuskegee University

- Established methods to address quality of existing online courses
- Facilitated the development of new online courses using Quality Matters standards
- Reviewed over 100 courses for quality and accessibility
- Organized faculty mentors into review panels for internal review of new online courses

Faculty Coordinator | 2015 - 2022

Office of Distance Education and Online Learning, Tuskegee University

- Trained and assisted faculty transitioning from traditional classroom instruction to online teaching
- Developed and implemented the TU Online Teaching Certificate Course (OTCC)
- Facilitated over 20 faculty workshops on online teaching methodologies

RESEARCH INTERESTS

Thermal Conductivity of Earth Minerals

- Using first-principles calculations to study the thermal conductivity of Earth's lower mantle minerals under extreme pressures and temperatures
- Contributing to understanding of heat transfer within the Earth with implications for geophysical models

STEM Education & Persistence

- Investigating factors that contribute to persistence for low-income students in STEM disciplines
- Focusing on the relationship between student characteristics, experiences, campus environment, and engagement in mentoring with persistence in STEM degree programs

Online Learning Methodologies

- Developing and evaluating innovative approaches to online and hybrid education
- Focusing on quality assurance, faculty development, and student engagement in digital learning environments

GRANTS & FUNDED PROJECTS

Promoting Excellence, Retention, Scholarship in STEM (PERSIST)

National Science Foundation (NSF) Grant #2130350 | January 2022 - December 2027

Principal Investigator | \$1,499,916

- Enhancing retention and success rates for low-income students in STEM disciplines
- Implementing mentoring, scholarship support, and innovative educational strategies
- Project website: [PERSIST Project](#)

Tuskegee's Summer Institute for Increasing Diversity Among Incoming STEM Undergraduates

National Aeronautics and Space Administration (NASA) | June 2023 - June 2026

Co-Principal Investigator | \$424,939

- Increasing diversity in STEM fields through a summer institute for incoming undergraduate students
- Developing foundational skills, research experiences, and a supportive community
- Project website: [NASA Project](#)
- YouTube video: [STEM DAY](#)
- Promo video: [PERSIST 2025 Application](#)

MPS-ASCEND EM: A Postdoc Community of Mentoring and Networking

National Science Foundation (NSF) Grant #2220322 | 2022 - 2024

Co-Principal Investigator | \$997,128

- Creating a supportive community for postdoctoral researchers in mathematical and physical sciences
- Emphasizing mentoring, networking, and professional development to enhance career trajectories

Past Grants

First-principles study of pressure dependence of phonon lifetimes in FeSi

HBCU/MEI Summer Faculty Program | June - July 2013

- Conducted research on the pressure dependence of phonon lifetimes in FeSi using first-principles calculations at Oak Ridge National Laboratory

PUBLICATIONS

Books

Elementary General Physics I: Algebra-Based College Physics I | 2023

Kendall Hunt Publishing, 1st Edition

ISBN: 9798765751602

- A comprehensive textbook designed to simplify complex physics concepts for college students
- Provides clear explanations and practical examples for algebra-based physics courses

Journal Articles

Thermal conductivity of the Earth's lower mantle

Xiaoli Tang, Moses C. Ntam, Jianjun Dong, Emma S. G. Rainey and Abby Kavner

Geophysical Research Letters, Volume 41, Issue 8, 2014

TEACHING EXPERIENCE

Courses Taught

- PHYS 301: Elementary General Physics I
- PHYS 302: Elementary General Physics II
- PHYS 301-DL: Elementary General Physics I (Online)
- PHYS 302-DL: Elementary General Physics II (Online)

Teaching Methods & Innovations

- **Collaborative Learning:** Implementing peer instruction, group problem-solving, and team-based learning
- **Technology Integration:** Incorporating simulations, interactive demonstrations, and digital tools
- **Flipped Classroom:** Utilizing a flipped approach for more interactive and application-focused activities
- **Project-Based Learning:** Assigning real-world projects that require application of physics principles
- **Data-Driven Assessment:** Using formative assessments and learning analytics to adapt teaching strategies
- **Inclusive Teaching:** Implementing strategies to create an inclusive learning environment for diverse students

ONLINE EDUCATION LEADERSHIP

Key Achievements

- **Canvas LMS Implementation (2023):** Successfully managed the university's transition from Blackboard to Canvas Learning Management System
- **Certificate for Teaching Online (CTO) Course (2020-Present):** Developed and implemented the TU Certificate for Teaching Online (CTO) Course with in-person and asynchronous tracks.
- **COVID-19 Emergency Response (2020):** Crafted the COVID-19 contingency response for online instruction during campus lockdown
- **Quality Matters Implementation (2019-2022):** Established quality assurance methods for online courses using Quality Matters standards
- **TU Common Course Shell Template (2018):** Developed a standardized course shell template for consistency across online courses
- **Faculty Development Program (2015-Present):** Established comprehensive faculty development program resulting in over 75 certified online instructors

Quality Assurance Metrics

- 100+ Courses Reviewed for quality and accessibility
- 75+ Certified Online Instructors trained
- 20+ Faculty Workshops facilitated on online teaching methodologies

PROFESSIONAL DEVELOPMENT & CERTIFICATIONS

- Certified Quality Matters Coordinator
- Online Teaching Certification Trainer

- Canvas LMS Administrator
- Certified Quizizz AI Game Changer

WORKSHOPS & PROFESSIONAL PRESENTATIONS

Teaching Remotely using Zoom for Synchronous Meetings with Students

COVID-19 Fastrack Workshops, March 16, 2020

Communicating with Students via Blackboard Announcements, Discussion Boards

COVID-19 Fastrack Workshops, March 17, 2020

SKILLS & EXPERTISE

Research & Computational Skills

- First-Principles Calculations
- Thermal Conductivity Modeling
- Materials Science
- Computational Physics
- Data Analysis

Teaching & Educational Skills

- Course Design & Development
- Online Teaching Methodologies
- Learning Management Systems
- Educational Technology Integration
- Student Assessment & Evaluation

Leadership & Administrative Skills

- Program Management
- Strategic Planning
- Faculty Development
- Quality Assurance

- Project Management

COMMUNITY ENGAGEMENT & SERVICE

- Founded the African Students Association at Auburn University
- Mentorship of undergraduate and graduate students in STEM fields
- Cultural advocacy and support for international students
- Educational outreach and community service initiatives

PERSONAL INTERESTS

- **Cultural Advocacy:** Promoting African culture and supporting international students
- **Community Service:** Giving back through mentorship and educational initiatives
- **Lifelong Learning:** Continuously pursuing knowledge and professional development

CONTACT INFORMATION

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University Profile: <https://www.tuskegee.edu/programs-courses/colleges-schools/cas/physics/physics-faculty-and-staff>

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