

Department of Physics

Diploma Ceremony

Sunday, May 12, 2024
Love Auditorium & Hall of Science



PROGRAM

12:00 Lunch

1:00 Welcome Address

Professor Steffen A. Bass, Chair
Department of Physics

1:15 Presentation of Diplomas for Degrees in Physics

Professor John Mercer
Associate Director
Undergraduate Studies
Department of Physics

Professor Ayana Arce
Director
Undergraduate Studies
Department of Physics

Professor Mark Kruse
Director
Graduate Studies
Department of Physics

FIRST MAJORS IN PHYSICS

Benjamin Grady Armentrout
Michael Alexander Bell $\Sigma\Pi\Sigma$
Emilia D. Cordon
Arianna Michelle Dwomoh
Melia Diane Fox
Vikram Kumar Manocha
Ahaan Shantanu Nalavadi
Jerone Ravosh Samari
Alexander Dun Yin Tong $\diamond\diamond \Sigma\Pi\Sigma$; Chang Award

SECOND MAJORS IN PHYSICS

Haris Adnan
Torda Bordas
Timothy Karl Koh
Alexander Christian Migala $\diamond\diamond \Sigma\Pi\Sigma$; McCormick Award
Santino W. Panzica
Judd Wilson Staples Jr.
Vinessa Mese Van
Ashrit Verma \diamond

MINORS IN PHYSICS

Alison Catherine Korn
William Augustus Milhizer
Derrick Roseman
Benjamin Ari Schussheim

FIRST MAJORS IN BIOPHYSICS

Malaika Ghosh Bhayana
Tajuan Gibbison
Lauren Adele Puig
Sophia Corbett Wilson
Tianfang Yu \diamond

SECOND MAJOR IN BIOPHYSICS

Andres Felipe Cordoba $\Sigma\Pi\Sigma$

GRADUATION WITH DISTINCTION IN PHYSICS

Alexander Christian Migala: *Graduation with High Distinction (Advisor: Kate Scholberg) – Neutrino Mass Ordering Study* $\diamond\diamond \Sigma\Pi\Sigma$

Alexander Dun Yin Tong: *Graduation with High Distinction (Advisor: Michael Troxel) – Lensing of Cosmic Filaments* $\diamond\diamond \Sigma\Pi\Sigma$

Ashrit Verma: *Graduation with Distinction (Advisor: Chris Monroe) – Scaling Trapped-Ion Quantum Computers through Photonic Interconnects* \diamond

Tianfang Yu: *Graduation with Distinction (Advisor: J. Mercer; S. Gerecht; C. F. Schmidt) – Vascular Engineering and Physiology* \diamond



Graduation with Distinction – Requires a significant thesis with originality and thesis defense.



Graduation with High Distinction – Highest Honor in Physics. Requires a thesis comparable to papers in peer reviewed journals and unanimous support from thesis committee members.

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Physics Honor Society

**Rodney I.
McCormick Award**

This award commemorates a former Associate Director of the Duke Free Electron Laser Laboratory, Rod McCormick, and is given in recognition of the research accomplishments of a physics undergraduate student.

**Daphne Y. Chang
Award**

This award commemorates Daphne Y. Chang (Trinity 2005), a Duke Physics major with an outstanding record of research and contributions in the department who passed away in 2009.

MASTER OF SCIENCE IN PHYSICS

Derek Soeder

MASTER OF ARTS IN PHYSICS

Austin Hulse

DOCTOR OF PHILOSOPHY IN PHYSICS

Summer 2023

Dr. Yu Feng
Dr. Thai Son Nguyen
Dr. Nathan Wilson

Fall 2023

Dr. Baran Bodur
Dr. Utsav Patel

Spring 2024

Dr. Joel Bierman
Dr. Elise le Boulicaut Ennis
Dr. Reed Hodges
Dr. Adryanna Major
Dr. Jameson O'Reilly
Dr. James Runge
Dr. Andrew Smith
Dr. Yikang Zhang

DOCTOR OF PHILOSOPHY DISSERTATION IN PHYSICS

Baran Bodur: [Advisor: Kate Scholberg] - Measurement of Atmospheric Flux-Weighted $n_e - {}^{16}\text{O}$ Cross Section with the Super-Kamiokande Experiment.

Joel Bierman: [Advisor: Jianfeng Lu] - Improving the Qubit-Efficiency of Quantum Algorithms for the Electronic Structure Problem Using Orbital Optimization.

Elise le Boulicaut Ennis: [Advisor: Mark Kruse] – Search for Top-Philic Heavy Resonances Using the Single-Lepton Decay Channel in pp Collisions at 13 TeV with the ATLAS Detector.

Yu Feng: [Advisor: Nicolas Brunel] – Robust Information Storage and Consolidation in Attractor Neural Networks.

Reed Hodges: [Advisor: Thomas Mehen] – Studies of T_{cc}^+ decays and Transverse-Momentum-Dependent J/Psi production using Effective Field Theory.

Adryanna Major: [Advisor: Kate Scholberg] – Coherent Elastic Neutrino - Nucleus Scattering in Large-Scale Scintillators.

Thai Son Nguyen: [Advisor: Roxanne Springer] – Effective Field Theory Studies of Few-Nucleon Systems: Fundamental Symmetry Violation, Electromagnetic Interactions, and Direct Detection of Dark Matter.

Jameson O'Reilly: [Advisor: Christopher Monroe] – New Techniques for Fast and High-Fidelity Trapped Ion Photonic Interconnects.

Utsav Patel: [Advisor: Mark Kruse] – Search for Light Fermiophobic Charged Higgs Bosons from Proton-Proton Collisions at 13 TeV using the ATLAS Detector.

James Runge: [Advisor: Phil Barbeau] – Pair Transfer Reactions and Nuclear Matrix Elements for Neutrinoless Double Beta Decay.

Andrew Smith: [Advisor: Haiyan Gao] – A Measurement of the Eta Meson Radiative Decay Width via the Primakoff Effect.

Nathan Wilson: [Advisor: Kenneth Brown] – Plasmonics for On-Chip Photodetectors and Light Sources.

Yikang Zhang: [Advisor: Thomas Barthel] – Driven-Dissipative Phase Transitions for Markovian Open Quantum Systems.

