

GRADUATE PROGRAMS

- Doctor of Philosophy
- Master of Science
- Accelerated 5-year BS/MS degree program available for UofL undergraduates

RESEARCH AREAS

- Astrophysics: Exoplanet research; stellar atmospheres and activity; galaxy morphologies and interstellar dust; applied remote sensing.
- Condensed Matter Physics: Materials modeling, first-principles simulations, and synthesis of nanoscale materials for designing the next generation of battery materials, and electrocatalytic materials for clean energy, Quantum Monte Carlo methods and machine-learned potentials to study complex quantum systems.
- Optics/AMO Physics: Femtosecond laser techniques for ultrafast magnetic processes in thin magnetic films, ion-trap platforms for quantum computers and simulators, and electro-active integrated optical waveguides and plasmonic waves for spectro-electrochemistry biosensing.
- High Energy Physics: Heavy quark and lepton flavor physics, and searches for dark sector candidates at the Intensity Frontier with the Belle II detector at the asymmetric e^+e^- SuperKEKB collider; K-long and muon (KLM) sub-detector, Monte Carlo event generators.
- Atmospheric physics: planetary atmospheres (Mars, Jupiter), big data research of the Earth's middle atmosphere.



CAREER PATHS

- Our recent graduates and alumni are employed in academia, national labs, the federal government, and industries (Intel, Photonics Industries, Battery Innovation Center, GM), including entrepreneurial ventures (RDI technologies).

ASSISTANTSHIPS

- Graduate Teaching Assistantships
- Graduate Research Assistantships on grants (DoE, NASA)
- University Fellowships
- PhD Completion Grant
- Fellowships

More at <https://louisville.edu/physics/research>