

# Top Research Program

We conduct groundbreaking research, from fundamental to interdisciplinary, to address the most critical questions in science and that lead to major discoveries.

# Areas of Research

- Theoretical/Computational Astrophysics
- Observational & Particle Astrophysics
- Quantum Information
- Photonics in Quantum Materials
- Computational nanoscience
- Experimental particle physics
- Particle theory and cosmology
- Theoretical and experimental biophysics
- Medical imaging
- Nuclear theory
- High-energy nuclear physics
- Gravitational wave astrophysics

# Centers and Institutions

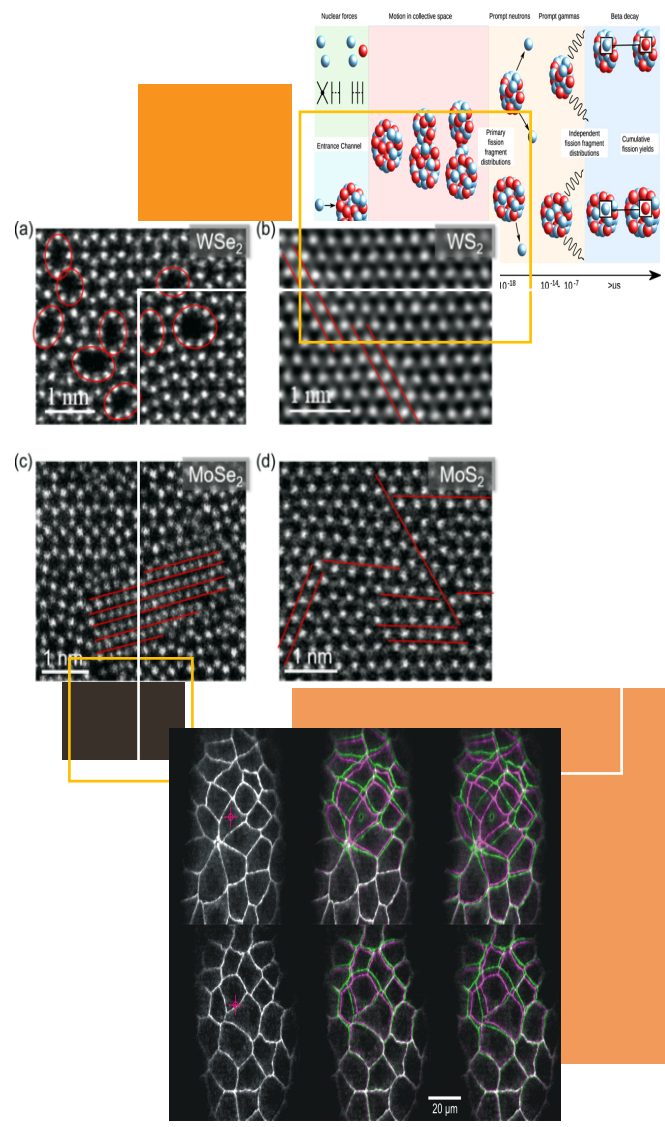
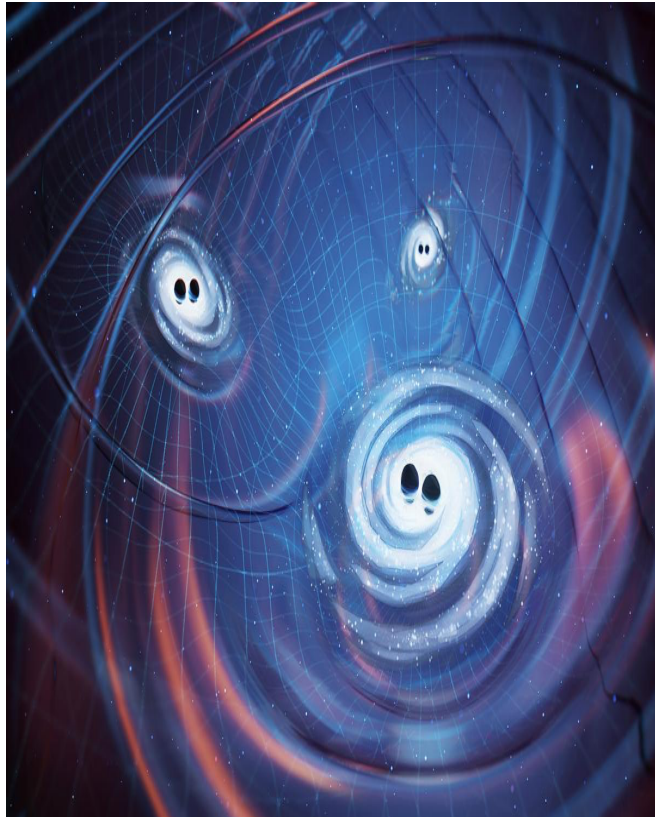
Leadership role in many interdisciplinary centers and institutions, including:

- Advanced Computing Center for Research & Education (ACCRE)
- Vanderbilt Initiative in Data-Intensive Astrophysics (VIDA)
- Vanderbilt Institute of Nanoscale Science and Engineering (VINSE)
- Vanderbilt Institute for Integrative Biosystems Research and Education (VIIBRE)
- Vanderbilt University Institute of Imaging Science (VUIIS)
- Vanderbilt Initiative for Gravity, Waves, and Fluids (VandyGRAF)

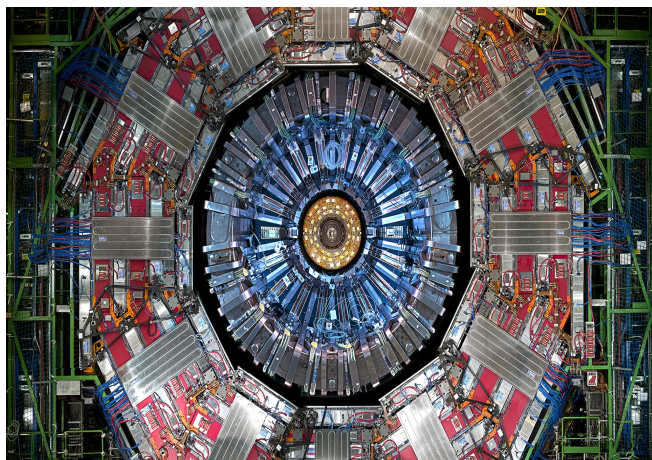
## Career Opportunities

Our collaborative efforts open opportune doors to prominent research institutions in the US and around the world!

- Brookhaven National Laboratory
- CHES (Cornell)
- Fermilab
- Large Hadron Collider at CERN
- Marshall Space Flight Center
- Oak Ridge National Laboratory
- SMARTS Telescopes (Chile)
- KELT-South Telescope (S. Africa)
- NASA
- ... and more!



# Physics & Astronomy @ Vanderbilt



## Example Contributions to Major Scientific Results

- Discovery of element, Tennessine
- Discovery of the Higgs Boson
- Discovery of a low-frequency gravitational wave background
- Discovery of a Forbidden Planet
- Evidence for drops of a nearly perfect fluid in nuclear collisions
- Discovery of hypervelocity stars escaping the galaxy
- State-of-the-art black hole imaging algorithms
- Ultrafast X-ray imaging of light-induced phase transitions

... and many more!

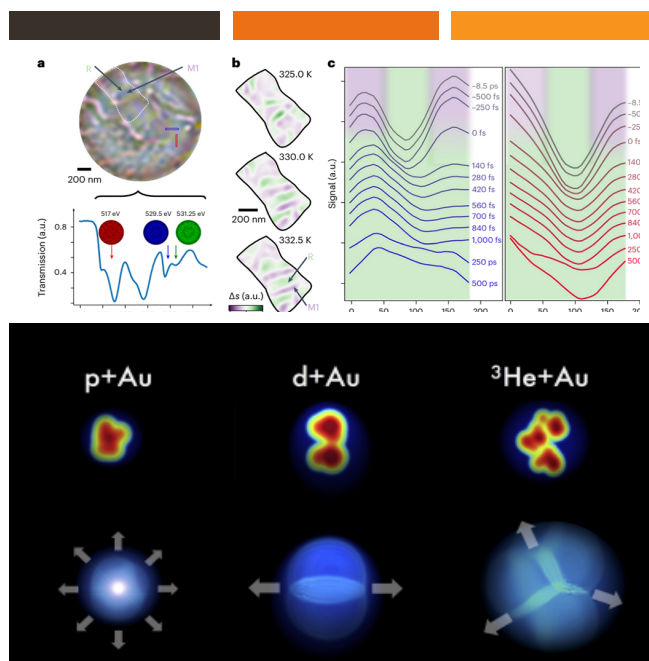
“... an incredibly stimulating yet personal research environment ... I never feel like I’m fighting for anyone’s attention when I need it, but I’m also encouraged to work independently so that I can hone my skills as a scientist.”

Kyle Godbey, 2020 PhD Graduate

## Our Graduate Programs

- Offer PhD programs in both Physics and Astrophysics
- 5-year packages of support with full tuition waivers, health insurance coverage, and competitive stipends (\$36,500 per year)
- \$2,000 relocation stipend for all first-year students
- Travel grants to attend scientific conferences
- Annual awards for outstanding TAs and student-led published papers
- Opportunities for topping-up awards and fellowships

Application fee waivers available



## Equity, Diversity, Inclusion

Our department endeavors to make an environment where equity, diversity and inclusion are inseparable from institutional excellence and to model intentional practices that respect the humanity of all. We work to promote environments that are welcoming, equitable, inclusive and diverse to foster a sense of belonging, with the goal of advancing human potential and growth.

