The Department of Physics and Astronomy
Announces a Spring 2025 Artist in Residence program in Creative Arts

Opportunity:
The Department of Physics and Astronomy invites proposals for Artist-in-Residence projects that respond to Physics and Astronomy research from creative visual arts, literary, film, performance, music composition, and design perspectives. Creative artist residents are expected to embed themselves in the research lab/group to envision and produce a response that connects to the scientific research (participating research group descriptions included below.) Collaborative applications are welcome. Preference will be given to those who have not previously participated. Selected artists will receive $500 at the end of the program. Funding for reasonable material, presentation, and display expenses will also be provided.

Open to: Undergraduate and graduate Studio Arts, Music, Theatre Arts, Film Studies, Architecture, and English majors and minors.

Expectations:
Selected creative artists are expected to spend time each week with the research group, and create a unique work, body of work, composition, or set of compositions in response that is presented at an exhibition/performance at the end of the spring term.

About the participating Physics and Astronomy research groups:
There are a number of different Physics and Astronomy groups that are interested in participating in this program. Please see the attached descriptions provided by the Physics and Astronomy faculty.

Information sessions:
Potential applicants interested in learning more about participating Physics and Astronomy research groups should plan to attend an information session to meet sponsoring researchers for a brief tour of the labs.
Dates – Wednesday, October 16, 3:00-4:00 pm; 100H Allen Hall and
Thursday, October 17, 3:00-4:00 pm; 100H Allen Hall

Proposal requirements:
- Students should be in good academic standing and have declared a disciplinary major or minor in English, Music, Studio Arts, Film Studies, Theatre Arts, and Architecture.
- Application file including contact info, GPA, artistic department faculty letter, current resume, unofficial transcript
- The artistic department faculty letter must confirm that the faculty advisor has reviewed and supports the merit and feasibility of the artist's proposed work. The creative artist and their advisor should specify how the advisor will support the creative artist. Examples include a mutual commitment to regular meetings or registering for independent study with the faculty member.
- A two-page proposal for the creative plan that connects the creative work to the research groups
- A one-page budget estimating material and presentation expenses (wood, etching plates, paper, framing, pedestals, performers, recording equipment, equipment rental, etc.).
- Work samples, including 2-3 written works, 3-5 JPEG images of visual work (with brief image description of title, media, dimensions, year of completion), 2-3 video samples, or two 5-10 minute MP3 composition/performance samples. Total file size should not exceed 20 MB. Alternatively large files may be posted on a third party site with a link provided.

Deadline to apply: Monday, November 11. Application materials or questions should be emailed to Michele Slogan (slogan@pitt.edu). For more information on the program and descriptions of the artists go to http://www.physicsandastronomy.pitt.edu/artist-residence-program.

Rachel Bezanson, Astro/Cosmo
Rachel Bezanson, Astro/Cosmo I am an observational astronomer studying the formation and evolution of galaxies through cosmic time. My work uses some of the largest telescopes in the world (the Keck telescopes in Hawaii, the Gemini telescopes in Hawaii and Chile, the ALMA telescope array and the Very Large Telescopes/VLT in Chile) and in space (the Hubble Space Telescope and the James Webb Space Telescope) to study the detailed properties of galaxies in the distant - and therefore early - Universe. I am actively involved with a variety of studies using JWST, including leading the large "UNCOVER" program that aims to detect light and study the properties of the earliest, and most distant, galaxies in the Universe, thus expanding our cosmic horizon. My work aims at characterizing how galaxies form, how they shut off their star-formation and transform, how the stellar motions trace the galaxies' evolving gravitational potential wells, and the importance of interactions with neighboring galaxies. I am also leading a new outreach initiative at the historic Allegheny Observatory (https://www.observatory.pitt.edu/), which is also an available resource to participants in the Artists in Residence program.

Andrew Mugler, Biophysics
Cells are living machines. They process information, make decisions, and take action. Cells sense their environment with a precision that no engineered device could beat. Groups of cells perform collective tasks that no cell can perform alone. The Mugler Group uses theoretical physics to investigate cell sensing, signaling, and communication. This helps further our our understanding of biological mechanisms and combat disease.

Vittorio Paolone, Particle
Particle physics is the study of the fundamental constituents of matter and how they interact. One of these constituents are a set of particles called neutrinos. Presently there are three known types of neutrinos: electron neutrino, muon neutrino, and tau neutrino. A majority of the neutrinos around us were born around 15 billion years ago, soon after the birth of the universe. Neutrinos have incredibly small masses and in general don't like to interact with matter. The neutrino density in the universe is estimated to be about 330 million neutrinos per cubic meter and a neutrino could pass through a light years' worth of lead and still not interact. Therefore at any second several trillion neutrinos passed through a finger in your hand. My research focuses on the study of neutrino properties through their flavor (type) mixing (oscillations) and interactions with matter.

Pranava Surukuchi, Particle
My research is in particle physics, which studies the properties of the most *elementary particles,* particles that cannot be composed of other smaller constituents.

Over the past century, particle physics has made incredible progress, with the notable achievement being the establishment of the Standard Model, a theory describing the properties of almost all known elementary particles. However, there are still some lingering unanswered questions. A lot of these questions seem to revolve around neutrinos, the lightest of the elementary particles. Even though we know that they are the lightest, we haven't been able to measure their mass yet. The low mass of neutrinos seems to indicate that perhaps their mass has distinctly different characteristics compared to the mass of the rest of the fundamental particles. Furthermore, this smallness and distinctness in mass may also be connected to why there is more matter than antimatter in the observable Universe.

For this reason, my research is focused on answering the following two questions:
What is the mass of neutrinos?
And how do they acquire their mass?

Michael Wood-Vasey, Astro/Cosmo

I am a theorist with research interests that lie within cosmology, defined rather broadly. I strive to maintain a close connection with observation in large part because the amount and discriminating power of observational data is expanding rapidly and will continue to expand into the next decade. My aim is to make predictions that are unique and testable in the near term and to facilitate comparisons with data that are robust and maximize the discriminating power of the data. In many cases, this leads to studies of the particular capabilities of forthcoming instruments to study any variety of phenomena, from dark energy evolution to galaxy formation processes. My interests range throughout a broad cross section of cosmology to encompass galaxy formation, the phenomenology and identification of the dark matter and dark energy, and astrophysical limits on fundamental physics.