



**A new collaborative space for
the future of nuclear science and
engineering at Penn State**



From the Department Head

We are thrilled to launch a new direction in the learning, teaching, and discovering of nuclear science and engineering at Penn State! Construction of our Nuclear Innovation Commons (NIC) in the Ken and Mary Alice Lindquist Department of Nuclear Engineering

was completed in the summer of 2021. We hope the 5,000-square-foot NIC on the first floor of Hallowell Building will serve as a collaborative space that inspires students, faculty, and staff to innovate in some of the most emergent areas in nuclear science and engineering. The numerous opportunities for connection and exchange of ideas provided by the NIC support our vision to be one of the most transformative, diverse, and inclusive nuclear engineering departments in the country. I invite you to explore the spaces that will carry forward the tradition and legacy of our trailblazers, innovators, and friends in nuclear science and engineering at Penn State with our future pioneers of nuclear in the 21st century.

Yours,

Jean Paul Allain

Department Head, Ken and Mary Alice Lindquist Department of Nuclear Engineering

Nuclear Innovation Commons

The commons feature a variety of spaces to promote interaction and collaboration within the department:

- Three group ideation rooms equipped with large touchscreen displays
- A state-of-the-art instructional digital laboratory for remote learning nuclear labs
- An office suite for staff supporting student and facility services
- Hot desks for undergraduate research and a NuclearMakr space
- A video wall for remote learning and connecting with nuclear scientists from around the world
- Flexible learning and meeting space with a tech bar, collaboration booths, writable walls, and a touch-screen Chart of the Nuclides

A Nuclear-Inspired Look

The NIC was designed with nuclear science and engineering in mind, with aesthetics and architecture that represent nuclear facilities and technologies on the leading edge.

Glass with a Glow

The space is accented with several dark blue glass panels designed to evoke the blue glow emitted by a nuclear reactor core. This phenomenon is an example of Cherenkov radiation—where charged particles move faster than the speed of light through a medium containing a static electric field. The resulting interactions radiate blue. Visitors to Penn State's own Breazeale Nuclear Reactor may observe real Cherenkov radiation.



Fuel Assembly Ceiling

The NIC's wood block ceiling mimics a nuclear fuel assembly, giving a sense of the inner workings of conventional and future next-generation reactor cores. The ceiling resembles a bundle of metal tubes containing fuel pellets, the fuel assembly providing energy for fission reactions. The hexagonal arrangement of fuel assemblies that may be found in future advanced nuclear reactors is also depicted in sections of the ceiling, as well as the geometrical shape of the instructor demonstration station in the Nuclear Smart Lab. Beyond evoking nuclear engineering in technical innovation, the ceiling also resembles it in concept: the wood blocks resemble the Chart of the Nuclides, a graph mapping the nuclear behavior of atoms characterized by their nuclear energy states.



Fusing Beam Light

The beam light fixture combines with the lilac and deeper purple color accents and the topology of the student pods to symbolize plasma science and engineering. In particular, the light fixture emulates the energetic particles coming together in nuclear fusion, just as the energy generated in the commons and student pods, in the shape of plasma stellarators, will fuse to produce more than the sum of their parts.



Inclusive Academic Community

Open spaces will encourage collaboration across interests in nuclear engineering, reflecting the department's values of transparency, inclusivity, and diversity. Students, faculty, and staff will be able to see what others are working on and be encouraged to work together to develop advanced solutions to nuclear challenges. The convergence of nuclear and advanced computing in these spaces will foster further collaborative innovation.

Naming Opportunities

For those interested in contributing to the department's innovative future, there are several naming opportunities available. For more information, contact Melissa Showalter at mus41@psu.edu.

Available Naming Opportunities

- Group meeting rooms, hot desk area: 4
- Lobby entry: 1
- Office hub: 1
- Instructional lab, gathering hub, recharge zone: 3
- Presentation space: 1
- Flexible learning and meeting space: 1
- NIC: 1