

Issue 17, September 2024

**SCHOOL OF NUCLEAR ENGINEERING CHRONICLES**

Legend has it that the unit 'barn' was established in 1942 by physicists M.G. Holloway and C.P. Baker while they were having dinner at the Purdue Memorial Union. They came up with the name because  $10^{-24}\text{cm}^2$  is "as big as a barn" for a nuclear reaction process. Professor Alex Sesonske (School Head, 1966-1973) taught in his class that the term came from the common Midwest expression, "someone was such a bad shot at hunting that they couldn't hit the broad side of a barn," implying that the probability of neutrons passing through nuclei to cause fission is so rare, their aim could be equated to that of bad hunters. Hope you enjoy the news. Boiler up!

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## MESSAGE FROM THE HEAD

Dear Friends & Family of Nuclear Engineering,

I hope you all had a restful and rejuvenating summer. As we embark on a new academic year, I am filled with excitement and optimism for the opportunities and challenges that lie ahead.

This summer, Purdue Nuclear was selected to lead a \$6-million DOE-sponsored small modular reactor (SMR) and advanced reactor (AR) technologies study. Work supported by the DOE grant will upgrade Purdue's Multidimensional Integral Test Assembly (PUMA) and Purdue University Reactor One (PUR-1). Our School also continues its separate SMR studies; one funded by the Indiana Office of Energy Development (IOED) for the State of Indiana and another in partnership with Duke Energy for Purdue West Lafayette campus and surrounding community.

This fall, we have more than 220 students enrolled in both our undergraduate and graduate programs, up from a total of 203 in Fall 2023. This increase reflects the growing interest in our Nuclear Engineering program and the rising recognition of the critical role that nuclear energy will play in a sustainable future.

This year promises to be exceptional, with new research projects and numerous activities designed to enhance academic and professional growth. Stay engaged, stay curious, and don't hesitate to reach out.

Here's to a productive, inspiring, and rewarding year ahead! Boiler Up!

Seungjin Kim  
Capt. James F. McCarthy, Jr. and Cheryl E. McCarthy  
Head of the School of Nuclear Engineering  
Purdue University

Click [here](#) to visit the school website.

## FEATURED STORIES



## Purdue NE startup wins top tech prize from the Venture Club of Indiana

Arvind Sundaram and Hany Abdel-Khalik, co-founders of Purdue-based startup, Covert Defenses, garnered the top prize of \$10,000 in the digital tech category at the 2024 Innovation Showcase pitch competition hosted by the Venture Club of Indiana

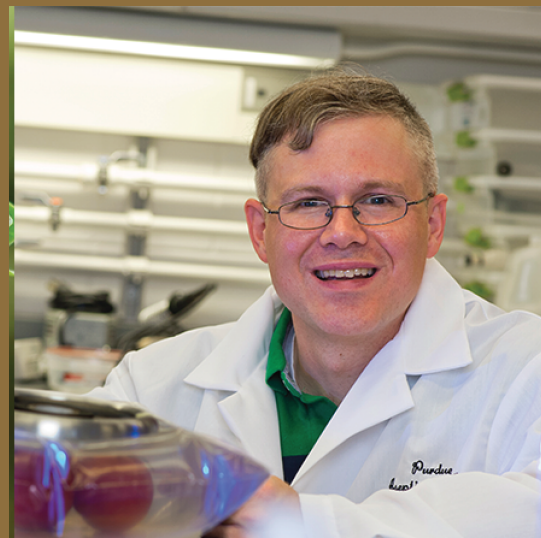
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## Purdue University and Syngenta are pioneering the use of electrical fields to make seed hybridization more sustainable

Purdue University and Syngenta are pioneering the use of electrical fields to make seed hybridization more sustainable. The collaboration began in 2016 when Syngenta contacted Professor Allen Garner, an expert in bioelectrics and membrane dynamics

[.Read more](#)



## International Atomic Energy Agency IAEA Collaborating Center at Purdue

The International Atomic Energy Agency (IAEA) has named Purdue's Center for Science of Information (CSOI) its first IAEA Collaborating Center on using artificial intelligence for nuclear power. The four-year agreement begins immediately and will help build confidence in AI applications for high-consequence systems, such as nuclear reactors. School of Nuclear Engineering professor Hany Abdel-Khalik will oversee all IAEA Collaborating Center activities

[.Read more](#)



### Designing safer, more economical nuclear reactors

Hitesh Bindra and a team of researchers at Purdue University have developed a method to design nuclear reactor cores that are safer and achieve better operational performance than traditional .cores

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## Please update your contact information!

### International Alumni Contact Update Form

As a valued member of our international alumni community, we are committed to staying connected and providing you with relevant updates. We kindly request you to update your contact information to help us maintain accurate records and .enhance our communication with you

[.Read more](#)

