

# 2 ASU faculty named NAI fellows

## Work in microelectronics, bioremediation honored

By Antonio-Javier “AJ” Montes, ASU News  
January 6, 2026

Professors [Krishnendu Chakrabarty](#) and [Rosa Krajmalnik-Brown](#) are among the latest Arizona State University faculty members to be [elected as fellows](#) of the National Academy of Inventors for their impactful research addressing societal needs.

The NAI Fellows Program celebrates academic inventors who have demonstrated a prolific spirit of innovation in creating or facilitating outstanding inventions that advance societal welfare, enhance economic development and elevate overall quality of life. Election to fellow status is the highest professional distinction accorded solely to academic inventors by NAI.

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View the [full list of 2025 NAI Fellows](#).

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Their elections bring the total number of [NAI Fellows at ASU](#) to 17.

“Krish and Rosy represent the very best of the ASU’s commitment to impactful scholarship,” says [Kyle Squires](#), senior vice provost of engineering, computing and technology at ASU and dean of the [Ira A. Fulton Schools of Engineering](#). “Their elections as NAI Fellows reflect the depth of innovation within our faculty and their ability to translate research into meaningful advances that strengthen industry, improve health outcomes and enhance society.”

This year’s class features 169 fellows, representing 127 universities, government agencies and research institutions across 40 U.S. states. Working across impactful fields such as quantum computing, artificial intelligence and regenerative medicine, NAI Fellows are advancing solutions to the most pressing challenges of our time. These fellows are among the world’s most accomplished researchers, with honors that include the Nobel Prize, the U.S. National Medal of Technology and Innovation, the National Medal of Science and membership in the National Academies of Sciences, Engineering and Medicine.

Chakrabarty and Krajmalnik-Brown’s work highlights the breadth of ASU’s innovations, from advancing semiconductors to making discoveries that transform human health.

Chakrabarty is the Fulton Professor of Microelectronics in the [School of Electrical, Computer and Energy Engineering](#), part of the Fulton Schools, and chief technology officer of the [Southwest Advanced Prototyping Hub](#), or SWAP Hub. In addition, he serves as director of the [ASU Center for Semiconductor Microelectronics](#).

Chakrabarty was elected an NAI Fellow for his contributions to microelectronics and design-or-test methodologies. He holds 24 U.S. granted patents and more than 12 pending patents directly related to artificial intelligence, hardware design, built-in self-test of integrated circuits, microfluidic biochips and AI for health care. His research has been supported by numerous U.S. government agencies, consortia and industry leaders.

His inventions in microfluidic biochips were licensed by startup Advanced Liquid Logic, which was subsequently acquired by Illumina. The inventions were also licensed by Baebies Inc. and GenMark Diagnostics, now part of Roche.

In 2025, Chakrabarty received the [Innovation Award](#) from the [Semiconductor Research Corporation](#) in recognition of his work on a patented technology that enables early defect detection and improves yield and reliability in advanced 3D integrated circuits.

Chakrabarty's work has been widely recognized and adopted throughout the semiconductor industry, including at companies such as Intel, Samsung, TSMC, NXP Semiconductors, Qualcomm and Mentor Graphics, now a Siemens business.

"I am humbled and grateful for this recognition, which also honors my students, postdocs and collaborators over the years," he says. "This recognition validates our focus on research that not only involves fundamental scientific discovery but goes beyond intellectual curiosity by targeting problems that are relevant to industry and society."

Chakrabarty was nominated for this honor by [Asad Madni](#), a distinguished adjunct professor of electrical and computer engineering at the UCLA [Samueli School of Engineering](#).

"I was delighted to nominate Krish as a fellow of the NAI," says Madni, a member of the National Academy of Engineering and the National Inventors Hall of Fame who was elected as a NAI Fellow in the Class of 2014. "His leadership and technical innovations in microelectronics, semiconductor technology, wireless networks and emerging technologies are most noteworthy and are playing a critical role in maintaining U.S. worldwide technical and economic leadership."

Chakrabarty's other recognitions include the [National Science Foundation](#) CAREER Award, as well as prestigious senior-level honors, including election as a fellow of the [Institute of Electrical and Electronics Engineers](#), or IEEE, the [Association for Computing Machinery](#) and the [American Association for the Advancement of Science](#).

He has published 29 books and 960 peer-reviewed papers, including nearly 400 journal articles. He has graduated 45 doctoral students and mentored more than 20 postdoctoral researchers.

Prior to joining ASU in 2022, Chakrabarty was the John Cocke Distinguished Professor and Chair of Electrical and Computer Engineering at Duke University.

Rosa Krajmalnik-Brown, the Helmick Professor of Environmental Engineering in the [School of Sustainable Engineering and the Built Environment](#), was elected an NAI Fellow for her translational research that blends disciplines into innovative solutions that improve human health and address environmental issues.

In her work, Krajmalnik-Brown integrates environmental biotechnology with advanced microbiome science to unravel how gut microbial communities shape human metabolism. Her research applies

these insights to develop novel diagnostics and therapeutic strategies for complex conditions such as autism.

“My work in bioremediation represents strong contributions to the field of environmental engineering,” she says. “My research on the gut microbiome advances our understanding of how gut microbes influence human health, particularly in relation to metabolism, gastrointestinal function and potential gut–brain connections.”

Krajmalnik-Brown holds more than 40 national and international patents.

“I feel honored, but what truly excites me is knowing that my research can make a real difference in people’s lives,” says Krajmalnik-Brown, director of [ASU Biodesign Institute’s Center for Health Through Microbiomes](#). “Being elected a fellow is a meaningful acknowledgment that the work I care so much about — supporting innovation, mentoring others and translating science into something that can help society and individuals — really matters.”

For nearly 15 years, she has worked closely with President’s Professor [James Adams](#), a faculty member in the [School of Engineering of Matter, Transport and Energy](#), on the connection between gut function and autism. Their research suggests that the lack of beneficial microbes impairs gut metabolism of children with autism, possibly impacting other autism-related symptoms.

Together, Krajmalnik-Brown and Adams have pioneered diagnostic methods that identify autism-related biomarkers in blood and urine, and they developed and patented [a promising treatment](#) designed to strengthen gut health and improve gastrointestinal and certain autism-related symptoms. They co-founded [Gut-Brain-Axis Therapeutics Inc.](#), which has raised more than \$6 million to support their research.

“We aim to help others and contribute to society through the work we do,” she says. “The diagnostic and therapeutic approaches we are developing for autism and gut health are tangible outcomes that make the research highly relevant to patients, families and society.”

ASU Regents Professor [Bruce Rittmann](#) nominated Krajmalnik-Brown to be an NAI Fellow, saying her work offers ways to improve the lives of children with autism.

“Her work shows that the microbial community in a human’s large intestine has a deep connection to a human’s neurological status,” says Rittmann, director of ASU Biodesign Institute’s [Swette Center for Environmental Biotechnology](#). “Also, her work — and I am fortunate to be part of it — shows that feeding the intestinal microbiome a diet containing fruits, vegetables and fiber leads to a healthy microbial community, lowers energy uptake and helps fight obesity.”

*This story originally appeared on [ASU News](#).*

**Text image(s)**



Krishnendu Chakrabarty





Rosa Krajmalnik-Brown