

Tulane mathematician named 2024 Sloan Foundation research fellow

February 20th, 2024

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Samuel Punshon-Smith, an assistant professor in the Tulane School of Science and Engineering, is one of 126 Sloan Foundation research fellows for 2024.

A Tulane University mathematician working to understand fluid mechanics has been named an [Alfred P. Sloan Foundation](#) research fellow, one of the most prestigious awards available to young researchers.

The foundation recognizes exceptional early career researchers from across the U.S. and Canada whose creativity, innovation and research accomplishments make them

stand out as the next-generation leaders.

[Samuel Punshon-Smith](#), an assistant professor in the Tulane [School of Science and Engineering](#), is one of 126 named fellows for 2024. More than 1,000 researchers are nominated each year, and winners receive a two-year, \$75,000 fellowship which can be used flexibly to advance the fellow's research.

Punshon-Smith's work focuses on using complex equations to explain how particles move in turbulent fluids. The area, which is largely theoretical, has been a vexing challenge for scientists to explain mathematically.

"My team is really leading this field of research and is at the forefront of what we can do," he said. "Scientists have long been puzzled by the complexity of turbulence. Since the 1940s, certain theories have proposed universal laws that have had success describing turbulence in a statistical sense. Unfortunately these theories are incomplete and not very mathematically rigorous. My work has been focused on developing a mathematically rigorous framework to solve this problem."

Punshon-Smith is the seventh Tulane researcher to become a Sloan fellow.

Past fellows have gone on to become distinguished figures in science. To date, 57 Sloan Foundation fellows have received a Nobel Prize, including Mounji Bawendi, last year's recipient of the Nobel Prize in Chemistry; 71 have won the National Medal of Science, 17 have won the Fields Medal in mathematics, and 23 have won the John Bates Clark Medal in economics.

The fellowships are awarded in the areas of chemistry, computer science, Earth system science, economics, mathematics, neuroscience and physics. Candidates must be nominated by their fellow scientists. Winners are selected by independent panels of senior scholars based on a candidate's research accomplishments, creativity and potential to become a leader in their field.

A full list of 2024 fellows is available [here](#). A database of current and former Sloan Research Fellows can be found at <https://sloan.org/fellows-database>.