

WHY SUPPORT RESEARCH AT THE DEPARTMENT OF ENERGY?



SO YOU CAN HELP SCIENTISTS DEMYSTIFY THE UNIVERSE, PREDICT AN ECOSYSTEM'S BEHAVIOR, AND SLOW CLIMATE CHANGE.

And that's just for starters. Through \$7 million in research funding from the Department of Energy (DOE) in FY2022, Boston University has been creating transformative science and technology solutions to address our biggest environmental challenges.

ILLUMINATING DARK MATTER

Much remains unknown about dark matter, a theoretical body of particles believed to make up a significant portion of the universe. But thanks to a DOE Early Career Award, Boston University researcher Indara Suarez may soon shine a brighter light on this mysterious force. With the help of artificial intelligence, the physicist is developing new computational tools and an ultrafast precision timing particle detector that could better spot the presence of dark matter and potentially unveil how it underpins and influences our universe. The DOE Early Career program is a prestigious award for researchers during crucial early career years who show the potential for transforming their fields.

SALT MARSHES AS WINDOWS INTO OUR ECOSYSTEM

Microbes provide an important glimpse into aspects of soil ecosystems—how they deal with pollution runoff or greenhouse gas emissions, for example. More challenging, however, is discerning the interactions of individual microbes with their broader environment, which can lead to insights into an ecosystem's general behavior. Backed by a Department of Energy grant, Boston University biologist Jeffrey Marlow is turning to local salt marshes to enhance our understanding of these systems. By studying how microbes interact with other organisms and the mineral grains in saltwater marshes, Marlow seeks to develop a blueprint for understanding what controls biodiversity, particularly as salt marshes are impacted by climate change.

TO SLOW GLOBAL WARMING, NATURE HOLDS THE KEY

Carbon capture and storage are vital components in combatting climate change, and nature performs the process easily—think soil and the ocean. But reproducing that system in human-made industrial processes has been difficult. To better understand which mechanisms sequester carbon and which release it, Boston University Professor Sean Elliott is studying different biological pathways that transform carbon. The chemist and environmental researcher hopes that by discovering precisely how nature handles this particular element, we might replicate a similar system to reduce emissions and slow global warming.

We hope you'll consider supporting research funding for the DOE. If you have any questions or would like to discuss the role that DOE research plays in our daily lives, please visit bu.edu/federal.



BOSTON UNIVERSITY RESEARCHERS ARE TURNING TO SALT MARSHES TO BETTER UNDERSTAND OUR ECOSYSTEM.

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