

WHY SUPPORT RESEARCH AT THE DEPARTMENT OF ENERGY?

FOR STARTERS, SO WE CAN MAKE THE SCIENTIFIC DISCOVERIES THAT WILL FUEL THE NEXT GREAT ADVANCES.

The mission of the Department of Energy (DOE) is to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions. Boston University receives over \$5.5 million in competitively awarded funding from the DOE to meet those challenges.

SMASHING SUCCESS IN THE SEARCH FOR A NEW PHYSICS. The Large Hadron Collider (LHC) smashes protons together 40 million times a second in the search for understanding the nature of matter and the elusive graviton. That produces an unimaginable amount of particles, residue, and data. That's where physics professor Tulika Bose comes in. She has served as the Trigger Coordinator for the Compact Muon Solenoid experiment at LHC, which basically means she tells the trigger—a filter of data—what to focus on and what to ignore, making the data manageable and more likely to be useful. Funding from the DOE helps. The result could be a unified, comprehensive, more precise physics that will better explain the universe and have practical applications in energy and fuel.

SUSTAINING THE SEARCH FOR SUSTAINABLE ENERGY. Daniel Segrè is studying how very small microbes grow and interact in their miniature "social network." In these microbial societies, certain microbes might eagerly eat what others discard as waste. If we can understand and engineer these tiny nutrient exchange networks, communities of microbes could be harnessed to transform plant matter into a kind of oily biodiesel fuel that would serve as a sustainable energy alternative to petroleum. Significant DOE funding helps make Dr. Segrè's lab a well-oiled machine.

CREATING SOLAR PANELS THAT CAN SOAK UP MORE RAYS. Current solar energy technologies have difficulty effectively utilizing all the energy they receive. Chemistry professor Björn Reinhard heads a lab at Boston University that is developing new optoplasmonic materials that have greater capacity to convert light into energy and then use it efficiently and effectively. Minimizing the waste in current technologies would make solar, a sustainable and clean energy source, much more attractive and lead to greater adoption. Reinhard's work is funded by the DOE in hopes that very soon there will actually be something new under the sun.

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



DOE FUNDS RESEARCH AT **BOSTON UNIVERSITY** THAT HARNESSES MICROBES AND PLANTS TO CREATE SUSTAINABLE ALTERNATIVES TO FOSSIL FUELS.