National Science Foundation
WHERE DISCOVERIES BEGIN

(index.jsp)

MORE SCIENCE NATION VIDEOS (VIDEOS.JSP) >

October 19, 2015

Bioinspired Soft Materials Center blurs boundaries between the animate and inanimate

Multidisciplinary collaboration key to developing new materials that can mimic the movement of living things

Scientists at the Bioinspired Soft Materials Center (/cgi-bin/good-bye?http://www.brandeis.edu/mrsec/) at Brandeis University are using fundamentally new approaches to study bioinspired soft materials, with the ultimate goal of developing new materials for artificial muscles, self-pumping fluids and self-healing materials.

The center is among the Materials Research Science and Engineering Centers <http://www.mrsec.org/> (MRSECs) supported by the National Science Foundation (NSF). It provides a multidisciplinary education for students in physics, chemistry and biology that will contribute to the workforce at the research frontiers and also contribute to the needs of emerging biomaterials industries. MRSECs support interdisciplinary and multidisciplinary materials research and education of the highest quality while addressing fundamental problems in science and engineering that are important to society.

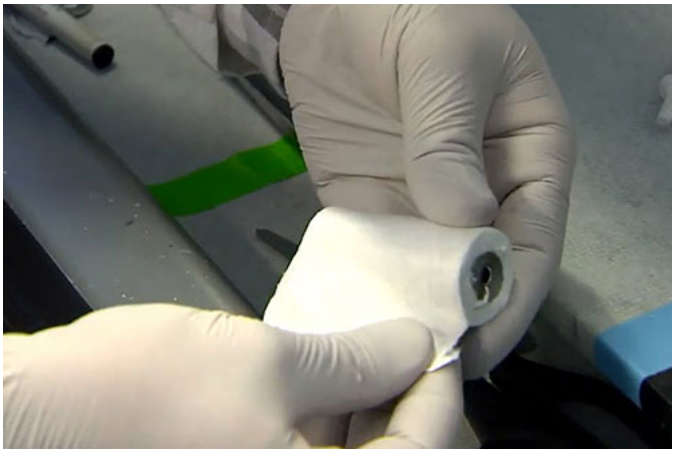
The research in this episode was supported by NSF award #0820492 (/awardsearch/showAward?AWD_ID=0820492&HistoricalAwards=false), Constraints and Frustration in Nano-Structured and Bio-Molecular Materials.

Miles O'Brien (producers/obrien.jsp), Science Nation Correspondent
Ann Kellan (producers/kellan.jsp), Science Nation Producer

Related Multimedia

Materials science and engineering research thrives in collaborative environments. On Feb. 18, 2015, NSF announced awards for 12 Materials Research Science and Engineering Centers (MRSECs) for multidisciplinary work that covers all areas of material science, fostering active university, national laboratory, industrial and international collaboration with integral multidisciplinary education and outreach. The centers support some of the world's best multi- and inter-disciplinary materials research and education addressing fundamental problems, such as developing new nanomaterials to build better artificial knee replacements and heart valves or developing 2-D materials that will likely transform computing. Find out more in this news release (/news/news_summ.jsp?cntn_id=134203).

Credit: Hera Vlamakis, Harvard University Medical School



Kit Parker, a lieutenant colonel in the Army Reserve and Harvard University bioengineer, has made it his mission to protect the men and women of the U.S. armed forces -- from improving wound dressings to designing lighter weight bullet proof vests. Parker and his team are developing next generation nanofibers at the Harvard Materials Research Science and Engineering Center (MRSEC).

Credit: Science Nation, National Science Foundation

Related Links

Materials Research (DMR) (/mps/dmr/about.jsp)
The mission of the Division of Materials Research (DMR) in the Directorate for Mathematical and Physical Sciences is to make new discoveries about the behavior of matter and materials; to create new materials and new knowledge about materials phenomena; to address fundamental materials questions that often transcend traditional scientific and engineering disciplines and may lead to new technologies; to prepare the next generation of materials researchers; to develop and support the instruments and facilities that are crucial to advance the field; and to share the excitement and significance of materials science with the public at large.

Goldilocks principle wrong for particle assembly: Too hot and too cold is just right (/news/news_summ.jsp?cntn_id=133083)
Microscopic particles that bind under low temperatures will melt as temperatures rise to moderate levels, but reconnect under hotter conditions, a team of New York University scientists has found. Their discovery points to new ways to create "smart materials."