

Defense department renews support of research to develop advanced aerospace health-monitoring systems

Feb 25, 2009



Aditi Chattopadhyay, a professor of mechanical and aerospace engineering, is overseeing work to develop techniques to better monitor the structural health of aircraft and aerospace systems.

An Arizona State University research project to help the nation protect the health of its military aircraft and aerospace systems has been awarded additional funding from the U.S. Department of Defense.

The Air Force Office of Scientific Research is administering the project, which is funded by the Defense department's Multidisciplinary University Research Initiative (MURI) program.

The project is led by Aditi Chattopadhyay, a professor of mechanical and aerospace engineering in the Ira A. Fulton School of Engineering and director of ASU's Adaptive Intelligent Materials & Systems (AIMS) Center. She is overseeing work to develop systems and techniques to better monitor the structural health and predict potential wear and tear in aerospace systems.

The decision to grant an optional two years of support brings total Department of Defense funding for the project to \$6 million over five years.

MURI program awards also support education and training of students pursuing advanced degrees in science and engineering fields critical to the mission of national defense.

Chattopadhyay said the project's goal is to make major progress in the ability to provide reliable estimates of the life cycles of current and future aircraft systems.

To do this, her team is using advanced sensor data, information management, computer modeling and algorithms to develop damage diagnosis and prognosis techniques. The aim is to provide an accurate assessment of aerospace system health by analyzing the materials of which its components are made down to the microscopic level, as well as examining the overall condition of the system.

The project co-leaders are Antonia Papandreou-Suppappola, a professor of electrical engineering, and Pedro Peralta, an associate professor of mechanical and aerospace engineering.

"Our team has specific expertise in material, structural, mechanical, electrical and systems engineering, and extensive experience in collaborative research projects under Department of Defense sponsorship," Chattopadhyay said.

Victor Giurgiutiu, head of the Aerospace, Chemical and Material Sciences Directorate of the Air Force

research office, is the program manager for the project.

Chattopadhyay said the ASU team is working closely with Air Force and Department of Defense research laboratories to ensure the project addresses critical issues for the military, and to help develop a plan for how the military can readily put to use the knowledge gained from ASU's research.

Writer:

Media Contact: Joe Kullman

Email: joe.kullman@asu.edu