A new center at The University of Texas at Arlington will focus on using nanotechnology to strengthen and enhance U.S. security through collaborative research across disciplines.

The Security Advances Via Nanotechnology, or SAVANT, Center will be home to projects already under way, including using nanoparticles to detect threats such as nuclear dirty bombs. It will also be a place to explore new concepts, such as using luminescent nanoparticles to prevent “friendly-fire” incidents in combat.

The collaboration will be primarily between the university’s College of Engineering and College of Science. The UT Arlington College of Liberal Arts, the College of Business and the College of Education and Health Professions are also involved in planning future projects.

Organizers hope the new center will be recognized as a Department of Homeland Security Science & Technology Directorate Center of Excellence by 2020 and, by that time, garner grants and private industry funding of more than $10 million annually. Currently, the Department of Homeland Security has 12 Centers of Excellence at universities nationwide. They work with industry and first-responders to develop new technologies to enhance homeland security.

“Federal funding agencies have clearly indicated the need for increased innovation to address U.S. security issues at home and abroad. Research universities, especially like UT Arlington, have a significant and unique role to play,” said Ronald Eisenbaumer, provost and vice president for academic affairs at UT Arlington.

Wei Chen, a physics professor in the UT Arlington College of Science, will head the new center. Chen, along with physics professor Andrew Brandt, has received more than $1.9 million in federal grants to develop radiation detection devices using luminescent nanoparticles embedded in a polymer thin film.

“Our center will go beyond standard detection techniques, using newly-advanced, science-based breakthroughs,” Chen said. “We will be looking to identify threats in a variety of arenas, including transportation hubs and other public gathering places, public infrastructure networks and the U.S. border.”

Brandt and Erick Jones, an associate professor in UT Arlington’s College of Engineering, will be deputy directors of the new center.

“The days when researchers across campus were restricted to their own silos of specialty are finished. If we are going to solve the complex problems, collaborations like this are essential,” said J-P Bardet, dean of the College of Engineering.

Other ongoing or proposed projects include:

- The use of near-field RFID, or radio-frequency identification, sensing nanotechnology to detect, track, trace and locate threats, especially at the U.S. border.
- Developing nanoscale probes and sensors for use in water and food safety testing.
- Development of nanomedicine for treatment and prevention of radiation exposure or damage.

UT Arlington’s North Texas location will be an asset to researchers’ work, allowing them to team with the ultimate users of threat-detection services, such as entertainment venues, military contractors and airports. Supporting and training young investigators will also be a major task for the new center. Collaborations with other universities also are planned.

“We will work to ensure that our students have valuable research opportunities at every level,” said Pamela Jansma, dean of the UT Arlington College of Science. “The wide array of projects proposed as part of the SAVANT center will enhance student experiences and help fuel security-based research in the future.”

The Security Advances Via Nano-Technology Center is part of the innovation under way at UT Arlington, a comprehensive research institution of more than 33,200 students and more than 2,200 faculty members in the heart of North Texas. Visit www.uta.edu to learn more.

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