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Bioterror Defense

Researchers at Northwestern's Center for Quantum Devices are developing new weapons in the battle against bioterrorism.

Led by center director Manijeh Razeghi, researchers have created and demonstrated a microscale ultraviolet light detector, a new and more precise method of detecting biological agents such as anthrax and smallpox. Solar-blind avalanche photodiodes, when combined with ultraviolet light-emitting diodes, could detect the spectral fingerprints of a biological agent attack.

Less sophisticated technology exists, but the APDs are more compact, less expensive, quicker and more accurate. Once the technology is developed, soldiers will be able to carry the cell phone–sized instrument in the palms of their hands onto the battlefield. It will be only slightly more complicated to use than a walkie-talkie, according to Razeghi, Walter P. Murphy Professor of Electrical and Computer Engineering.

In addition to the APDs, Razeghi and her fellow researchers at the Center for Quantum Devices nearly perfected a laser that has the ability to detect explosives and chemical warfare agents. The research team also developed technology that could lead to a hand-held infrared camera capable of detecting missile attacks. It could also be applied toward medical advances in surgery.