

UCF Research Aimed at Protecting Pilots, Soldiers From Blinding Lasers

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An enemy laser beam can reach and blind a pilot or soldier in about a billionth of a second. University of Central Florida researchers are trying to develop an eyeglass-like device that would react quickly enough to prevent such beams from blinding soldiers, pilots or police officers, potentially saving their lives.

Working with chemistry researchers at the Georgia Institute of Technology, UCF scientists already have the technology to make objects darken quickly enough to prevent blindness from a laser beam, said Eric Van Stryland, dean of UCF's College of Optics and Photonics. The next step is to incorporate that technology into an object small enough to be worn comfortably by soldiers and pilots.

The UCF-led team of chemists, engineers and optical scientists wants to come up with a way to fit the technology in a device not much bigger than a standard pair of eyeglasses, said Van Stryland, who is also director of the Center for Research and Education in Optics and Lasers and the Florida Photonics Center of Excellence at UCF.

The new technology works like sunglasses that gradually get darker when the people wearing them step into sunlight and lighter when they return inside. The technology for soldiers and pilots must work a lot faster, as a typical laser beam lasts only about 10 billionths of a second (10 nanoseconds) and travels one foot every billionth of a second. At that speed, the damaging laser pulse can reach a pilot flying at 10,000 feet in 10 millionths of a second.

The transparent materials in the device would have to recognize laser beams of any color and, as the atoms and molecules responded to the light, immediately darken to protect the eyes. Basically, the laser beam would provide the energy needed to spark the electronic interactions in the chemicals that would temporarily darken the devices.

Researchers are trying to find a liquid material with atoms that would break up easily to block the lasers and then come back together quickly so that vision is restored. Unlike a solid, a liquid material could break up and come back together several times in response to multiple threats.

While lasers have yet to cause major problems for the military during war, Van Stryland said they could begin to as laser technology becomes more available and less expensive. Since lasers also could become a weapon for criminals, police officers also could benefit from a device developed by the UCF and Georgia Tech researchers.

The Army Research Office has provided \$1 million for the project, and researchers hope to receive more money from the agency in the next few years. U.S. Rep. Tom Feeney, R-Oviedo, helped to secure the \$1 million and plans to help UCF obtain additional funding for the research. “This funding provides a great opportunity for Central Florida scholars to participate in the development of cutting-edge technology,” Feeney said. “UCF students will now play a significant role in the protection of the men and women serving our country, both at home and abroad.”

Original press release can be found [here](#)

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