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## **E-Bombs future for weaponry**

*By Ryan Floersheim*

High-powered microwave weapons, capable of winning wars without causing human casualties, just may be the future of warfare.

One UNM professor has been working quietly in a laboratory on campus since 1988, trying to work out the kinks in the new microwave technology.

Edl Schamiloglu, a professor of electrical and computer engineering, has received more than \$12 million for his research on the high-powered microwaves, called directed energy.

He said the intense waves of energy have countless real-world applications, and one party interested in them is the Pentagon. In fact, a large portion of his funding has come from the Air Force Office of Scientific Research.

It is that relationship with the military that has earned Schamiloglu more than his share of media attention lately.

In 2003, articles regarding the potential military uses of the microwave technology sprung up in national publications such as The New York Times and the Washington Post.

Schamiloglu admitted the technology can and may already be used in special microwave weapons that detonate near a target, and with their blasts of electromagnetic waves, melt communications circuitry without harming nearby humans.

"However, a lot of what we do just goes to support science and engineering education," he said. "Most people just assume that when research is supported by the federal government that it is going toward the military."

However, the Defense Department is already using his research to develop such weapons, he said.

"When the DOD supports a research project, it usually means they have plans for it down the road," Schamiloglu said.

The microwave research at UNM is closely linked to the Air Force's Research Laboratory at neighboring Kirtland Air Force Base, Schamiloglu said.

The lab is the Pentagon's center for research on microwave weapons, more commonly called E-Bombs.

The military presence on UNM's campus, regardless of its purpose, has drawn criticism and protest from many people in the community.

"All these programs are basically the public subsidizing this country's military war machine," said Bruce Gagnon, coordinator of the Global Network Against Weapons & Nuclear Power in Space, a national coalition opposed to nuclear research. "It is ironic that the words humane and weapons are in the same sentence."

Gagnon said it is ethically and morally wrong to develop weapons on college campuses, regardless of what kind they are.

Schamiloglu is not the only UNM researcher whose work goes to furthering the military's technological goals.

Mohamed El-Genk, a professor of chemical and nuclear engineering, has had a hand in the development of the Air Force's Prometheus nuclear rocket project, according to national news releases.

Gagnon, the global network and protesters from across the world are in town this week to ask El-Genk and other nuclear researchers attending an annual nuclear symposium here to reconsider their work.

El-Genk could not be reached for comment.

"Bringing in profit at the expense of killing people is not what higher education is supposed to be about," said Bob Anderson, an adjunct professor at UNM, about the weapons research on campus. "The University is trying to increase its military contracts. There are more honorable ways to make money."

Still, Schamiloglu said his research with the microwave technology can be used for many things other than the military.

He said since the terrorist attacks of Sept. 11, 2001, U.S. officials have realized just how vulnerable the country's citizens are to similar weapons.

While the microwave technology itself is very complex, Schamiloglu said it is possible for terrorist groups to construct a crude electromagnetic bomb capable of crippling the country's communications network.

"We are at the forefront of knowledge," he said. "As always, that knowledge can be used for both good and evil purposes. We have to do our job the best we can and realize that we are just a small part of a bigger picture."

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