Non-lethal Technology Innovation Center (NTIC)

University of New Hampshire
Durham, NH

Sponsored by a grant from the Joint Non-lethal Weapons Directorate (JNLWD)

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www.unh.edu/ntic

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JNLWD and NTIC Missions

To advance the non-lethal capabilities in peacekeeping, conventional warfare, national security, policing, disaster relief, humanitarian assistance, and noncombatant evacuation operations, NTIC has a mission to provide the U.S. military and law enforcement agencies with access to the nation's best research professionals.

Air Force

Army

Marines

Navy

Coast Guard

Justice

Academia

Industry

Government Laboratories

NTIC Mission Statement

The Non-lethal Technology Innovation Center's mission is to effect the next generation of non-lethal capabilities by identifying and promoting the development of innovative concepts, materials, and technologies.

Program Genesis

NTIC was initially awarded funding in 1999 from the JNLWD. The center awarded its first grants in 2000. In the first two years of the program, we have granted funding for 10 research projects.

Activities

- Innovative Research Project Grants
- Exploratory Survey or Review Grants
- Non-lethal Technology and Academic Research (NTAR) Symposium
- Technical Working Groups
- Taxonomy Database

Innovative Research Project Grants

Renewable grants aimed at supporting collaborative and interdisciplinary 1-2 year projects. Research emphasizes innovative NLW applications involving new materials and methods, or the demonstration of significantly different uses of existing materials and technologies. These grants are funded at suggested cap of $270,000.

IRP Grant Program

There is a strong commitment to support the research programs of U.S. academic institutions. Industry is encouraged to partner with academia if applying to the grant program. Post-doctoral and student participation is highly encouraged as well. The center strives not only to promote and facilitate the development of the next generation of NLW and capabilities, but to develop the next generation of NLW researchers.

Exploration Survey or Review Grants

These non-renewable grants are particularly aimed at providing reviews of science, engineering, or humanity topics that may be applicable to NL technologies.

Studies of 3 - 12 months capped at $48,000

RFP from JNLWD - FY 2000

- Slippery materials
- Rigid foams
- Biomaterials and Nanotechnology
- Foreign attitudes toward NLW
- Micro-electromechanical systems

Grants funded in FY 2000

- Potential use of MEMS in NLW systems
- Development of particle-based slippery materials
- Fast cure, enhanced storage polyurethane foams
- Foreign attitudes toward NLW
- NLW and blood-brain barrier

Grants funded in FY 2001

- Crowd control dynamics
- Ultrasonic transmission properties of human tissues
- Conditions for extrusion of genetically engineered spider silk
- Literature survey of laser-induced plasma

RFP 2001

- Microneurographic measurement and interpretation of electrical activity in peripheral nerves
- Compact laser diode sources of high power and high intensity coherent radiation. (Specifically as applied to Pulsed Energy Projectiles or Advanced Tactical Lasers)
- Polymeric depolymerizers : Materials that can attack rubber in tires/gaskets, asphalt. No bio-organisms.
- Fuel/lubricant contamination: Effectively foul large quantities of petroleum, oil, lubricants with small amounts of materials. No bio-organisms.

RFP 2001 (cont.)

- Human behavioral response model to malodors in a facility; levels of malodors needed, difficulty in performing tasks, etc.
- Human behavioral response model of malodor effectiveness in clearing personnel from an outdoor structure (bridge, road).
- Human behavioral response model to blunt impact weapon, e.g, the response of a crowd to a non-lethal rubber ball grenade.

Technical Working Groups

Brainstorming sessions of invited experts aimed at developing innovative solutions to current issues and/or requirements of NLW. The workshops are focused on a specific topic from the priority list, an IRP grant, or service requests of the JNLWD.

Topics addressed:

1) Bridge denial/area denial

2) Materials for rigid foams

3) Software predictive models of NLW intervention in crowd control

NTAR III – Portsmouth, NH

Sponsored by:	JNLWD	NIJ
Session coordinators:	UNH Kansas State	Penn State U Texas -Austin

95 attendees from:

12 universities

8 law enforcement agencies

7 private companies

6 government labs and military installations

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NTAR IV – La Jolla, CA

November 19-21, 2002

Presentations to include:

Kinetic energy and temperature effects on blood/brain barrier

Laser-induced plasma

Crowd dynamics

Micro-sensor applications

Kinetic energy rounds: design and injury response

Particle-based slippery material

Overview of crowd control training in SE Asia using NLW