INSTITUTE FOR SOLDIER NANOTECHNOLOGIES

The Institute for Soldier Nanotechnologies (ISN) (http://isnweb.mit.edu) was established by the Army as an interdisciplinary research center at MIT in 2002.

The ISN mission is to help the Army dramatically improve protection, survivability, and mission capabilities of the soldier and of soldier-supporting platforms and systems. A major ISN goal is to enable high-tech protection and survivability capabilities through affordable clothing and equipage of lighter weight, increased comfort, and decreased energy demand. To this end, the ISN performs research to enable improved blast and ballistic protection, detection and detoxification of chemical and biological substances in the environment, portable electric power, physiological monitoring and medical care in mission theatres and remote locations, and to provide the soldier with reliable situational awareness and secure means to receive and transmit voice and data communications.

ISN researchers have access to state-of-the-art instrumentation for nanotechnology research at its 40,000-sq-ft facility. Most ISN research is performed by graduate students as part of master’s and doctoral theses in MIT academic departments, by postdoctoral researchers, or by undergraduates participating in the Undergraduate Research Opportunities Program (UROP) (http://catalog.mit.edu/mit/undergraduate-education/academic-research-options/undergraduate-research-opportunities-program). Many theses are co-supervised by two or more faculty members representing different areas of technical expertise. Each year, approximately 25 faculty members from about a dozen MIT departments participate in ISN research.

In addition, visiting researchers from industry and Army laboratories participate in ISN research and tech transfer, bringing knowledge and practical perspectives that greatly enrich the ISN learning environment. Industry partners provide expertise on product development, systems integration and affordable manufacturing in quantities needed by particular customers and thus help bring laboratory-scale ISN innovations closer to real-world applications for the soldier. Army partners collaborate with the ISN on basic and applied research, provide guidance on the soldier relevancy of ISN research, and participate in tech transfer.

Students seeking to perform thesis or UROP research at the ISN should contact faculty and professional research staff members listed on the ISN website (http://isnweb.mit.edu/faculty.html). For further information, contact ISN (isn@mit.edu), 617-324-4700.