Integrating Nanotechnology with Cell Biology and Neuroscience

INCBN IGERT Seminar

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Nanoneurotechnology in National Security, Intelligence, and Defense: Technical Capabilities and Ethical Issues

The convergence of nanotechnology and neuroscience has enabled development and implementation of techniques and tools that allow heretofore unparalleled access to the brain – and by extension, the ability to affect cognitions, emotions, and behaviors. In light of this, nanoneuropharmacologic agents and a variety of nanoneurodevices are being considered for use in ways that impact national security, intelligence, and defense (NSID), and thus are of interest to the military and several government agencies, as well as a variety of foreign states and actors. This lecture presents an overview of nanoneurotechnological applications in NSID, describes the limitations and possible de-limitations of such approaches, and the potential ethical-legal issues that arise in - and from - such research and its applications. To address these possibilities, it is advocated that a stance of preparedness be employed that engages pragmatic evaluation of scientific progress and its ramifications, and from this an ethic of responsibility be developed that informs and guides policy to engage and support research and its applications in NSID.