An NSF Integrative Graduate Education and Research Traineeship in

**Integrating Nanotechnology with Cell Biology and Neuroscience**

**INCBN IGERT Seminar**

**Location:**
Room 101, Center for High Technology Materials (CHTM)
1313 Goddard SE
SW corner of UNM’s Science and Technology Park

**Monday, 25 September 2006, 2:30 pm**

**Speaker: Dimiter N. Petsev**

**Assistant Professor, Dept. of Chemical and Nuclear Engineering, UNM**

**Micro and Nanofluidics for Bioengineering Applications**

This presentation will give an overview of some of the activities of Dr. Petsev’s group in the area of micro and nanofluidics. The flow of fluids in narrow channels enjoys a substantial attention recently due to the increased interest in miniature integrated devices for molecular separation, sensing, and analysis. In such systems the transport is often determined by electrokinetic phenomena. Detailed analysis will be presented of the transport of current, fluid, and dissolved analytes in channels that have sizes comparable to the thickness of the electric double layer formed at the walls. It will be shown that a dramatic reduction of the channel width may lead to new phenomena and methods for molecular separations.

Current research in Dr. Petsev’s group also involves development and optimization of microfluidic methods for formation of oil in water emulsion droplets. The goal is to obtain droplets that have a specific size and are very monodisperse. Such emulsions will then be used as test tubes for DNA sequencing and analysis.