

THE SPRING 2007 CONDENSED MATTER SEMINAR SERIES PRESENTS:

**Prof. Alexey Onufriev (Virginia Tech)**

*‘How Soft Is the DNA?’*

**Abstract:**

The way DNA bends determines, to a large extent, how it recognizes and binds other biological molecules, and also how it can pack in cellular compartments. Traditionally, DNA was considered fairly rigid on the relevant length scales (less than 500 Angstroms). Recent experiments have sparked an intense debate in the field by showing that DNA may, in fact, be much more flexible than previously thought. Moreover, the textbook picture of DNA as an elastic rod obeying Landau's theory of elasticity appears to break down. The structural origins of this newly discovered flexibility of the DNA are still unknown. Atomistic molecular dynamics simulations we performed on SYS-X provide clues into the possible origins of this phenomenon. I will briefly discuss the methods we use, and then focus on our findings and their implications for the mechanism of DNA flexibility.

**Wednesday, May 2  
304 Robeson Hall  
4:00 P.M.**