



The Virginia Tech Physics Department presents the following colloquium:

Prof. Cristina Marchetti (Syracuse University)

*“Hydrodynamics and Soft Physics:
From Complex Fluids to Living Cells”*

Abstract:

Historically the term hydrodynamics was synonymous with fluid mechanics and referred to the study of the dynamics of fluids in motion under specified boundary conditions. Today hydrodynamics denotes the description of the collective large-scale dynamics of a wide class of systems, from magnets to crystalline solids, in terms of a small number of conserved and broken symmetry variables. After introducing some of the general ideas behind modern hydrodynamics, I will discuss its application to soft condensed matter and biological systems. I will introduce a new class of soft *active* complex matter to which energy is continuously supplied by internal and external sources. As an important example of active matter I will describe the structure and mechanical properties of the cell cytoskeleton. This is a complex network of long biopolymers crosslinked by motor proteins that act like nanomachines, supplying energy to the filament network and controlling its structure and function.

Friday, December 1

2:30 P.M.

210 Robeson Hall
