

**Spring Seminar Series**  
**3:30pm - 4:30pm, Wednesday April 3, 2013**  
**Johnston Hall 338, Louisiana State University**

**Electrostatic Interactions in Polymers  
And Soft Matter**

by

**Prof. Andrey Dobrynin**

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Electrostatic interactions between macroions play an important role in different areas ranging from materials science to biophysics. They are main driving forces behind layer-by-layer assembly technique that allows fabrication of multilayer films from synthetic polyelectrolytes, DNA, proteins and nanoparticles. They are responsible for the extremely low friction coefficient between biological surfaces such as articular cartilage coatings. In this talk, using results of the molecular dynamics simulations and scaling analysis, I will show what effect electrostatic interactions have on a collapse of polyelectrolyte chain in a poor solvent conditions for the polymer backbone, on a layer-by-layer assembly of charged nanoparticles and polymers on porous substrates, and on friction and lubrication between brush covered surfaces.

**ANDREY DOBRYNIN** is Professor of Physics at the Institute of Materials Science and Department of Physics at the University of Connecticut in Storrs, CT. He received his B.S. (1987) and Ph.D. (1991) degrees in Polymer Physics from the Moscow Institute of Physics and Technology, Moscow, Russia. He joined the faculty at the University of Connecticut in 2001. His research focuses on polyelectrolyte solutions and gels, charged polymers at surfaces and interfaces, electrostatic interactions in biological systems, soft-matter physics and biophysics. For his work on charged polymers Prof. Dobrynin was elected a Fellow of the American Physical Society. More information is available from his research group web page: [www.ims.uconn.edu/~avd](http://www.ims.uconn.edu/~avd)

*This seminar will be broadcast at the following venues: Liberal Arts Building 234 (UNO), Qatar Pavilion Conference Room 226 (Xavier University), JB Moore Hall Room 211 (Southern University), PML 1015, Center for Instructional Technology, at the Wyly Tower (LA Tech), and via Adobe Connect at <https://connect.lsu.edu/la-sigma/>.*

