

THE MATERIALS SCIENCE AND ENGINEERING DEPARTMENT

WITH PROFESSOR MONICA OLVERA DE LA CRUZ PRESENT

McCormick Eshbach Professor

Alexandre P. dos Santos

Assistant Professor of Physics

Universidade Federal do Rio Grande do Sul (UFRGS)



Modeling electrostatics and dynamics at interfaces and confined spaces

Ions and electrostatics are present in a large number of systems in industry and medicine. They are the main components of drug delivery methods, biological processes and paint stabilization. The knowledge about the properties, behavior and ionic controlling in varied conditions is very relevant. In this lecture we show some results and advances in the study of ions near interfaces and at confinement. Specific ions can adsorb to interfaces leading to interesting properties. The ionic dynamics is discussed considering the strength of electrostatic interactions and polarization of confining surfaces. The related perspectives and applications are addressed.

Alexandre P. dos Santos is an Assistant Professor at Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil. He ministers classes for engineering and physics courses. His main area of research is soft matter, dealing with computational simulations and analytical theories. In 2013 he won the Brazilian Physics Society (SBF) Award for Best Doctoral Thesis in Physics, advised by Prof. Yan Levin. He was mentioned by CAPES, a Brazilian educational agency, for the Capes Thesis Award in the same year. In 2017 he spent one year as Post-doctoral Fellow with Prof. Roland Netz in Berlin, supported by Humboldt/CAPES program. Professor dos Santos will be with the MSE department until the end of the winter 2023 quarter.

Friday, January 20th • 2 pm CT • Ford Hive Rm 2350

In person only; no Zoom

Questions? Contact allison.macknick@northwestern.edu and tiffany.zhang@northwestern.edu