

DF 14: Nanostructured oxide thermoelectrics

Time: Wednesday 12:30–12:50

Location: GER 37

DF 14.1 Wed 12:30 GER 37

Application of nanostructures in the removal of contaminants: An experimental and theoretical approach — ●SAMUEL BALTAZAR¹, DORA ALTBIR¹, ALEJANDRA GARCIA², ALDO ROMERO³, MARIA RUBIO⁴, and NICOLÁS ARANCIBIA⁴ — ¹Departamento de Física y CEDENNA, Universidad de Santiago de Chile, Chile — ²Centro de Investigación en Materiales avanzados CIMAV, Monterrey, México. — ³Max-Planck-Institute für Mikrostrukturphysik, Halle, Germany — ⁴Facultad de Química y Biología, CEDENNA, Universidad de Santiago de Chile, Santiago, Chile

The study and application of metallic iron nanoparticles for cleaning

contaminated water has been enhanced during the last years in several regions around the world. In particular, we consider the sorption of arsenic and lead from water following the kinetic process of the nanoparticles. Characterization of the material before and after the sorption process is considered in order to identify the new structures as a function of pH, and specific details of the nanoparticles such as the sorption capacity or the surface area. A Theoretical approach is also considered in order to identify the interactions between Arsenic compounds and iron nanoparticles performing ab initio calculations based on density functional theory.