CCMX

CCMX Winter School
2019

Surface Durability and Corrosion

Stefano Mischler
EPFL

Abstract

Surfaces are nowadays fine tailored down to nanometer or even atomic scale to ensure a variety of functionalities ranging from biosensors to catalyzer or optical reflectance. The durability of such surfaces is highly dependent on chemical interactions with the operating environment, i.e. corrosion reactions. Despite their crucial role for the lifetime, nano-scale corrosion reactions are often neglected in the conception of advanced nano-scale devices. In this course we address the corrosion of inorganic materials through a surface physical approach reviewing phenomena such as crystal structure effects, adsorption reactions, surface oxide film build up and others. Reaction kinetics and electrochemical corrosion aspects will be discussed.

Contact details

E-mail: stefano.mischler@epfl.ch