



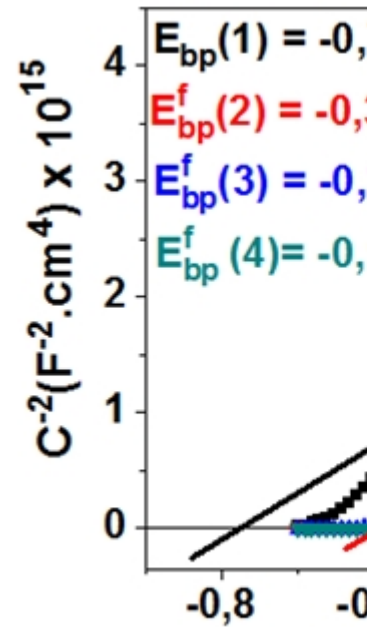
ILV

Institut Lavoisier de Versailles

INTERFACIAL ELECTROCHEMISTRY

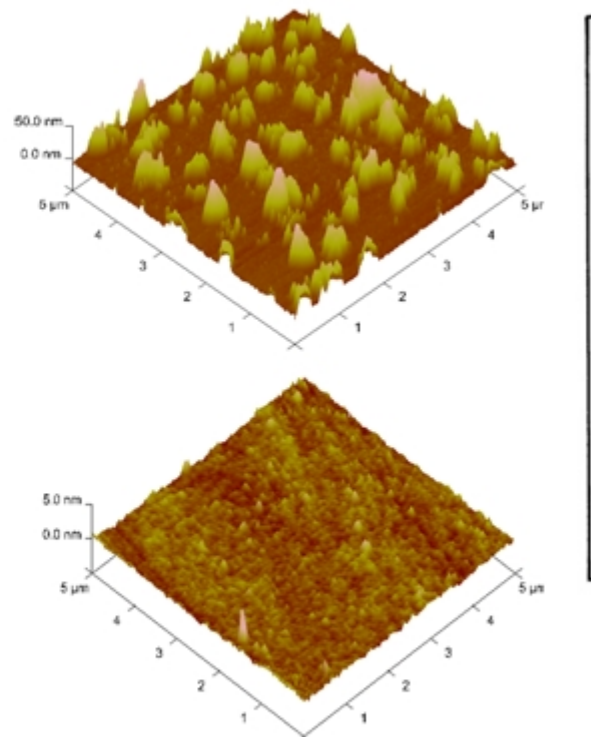
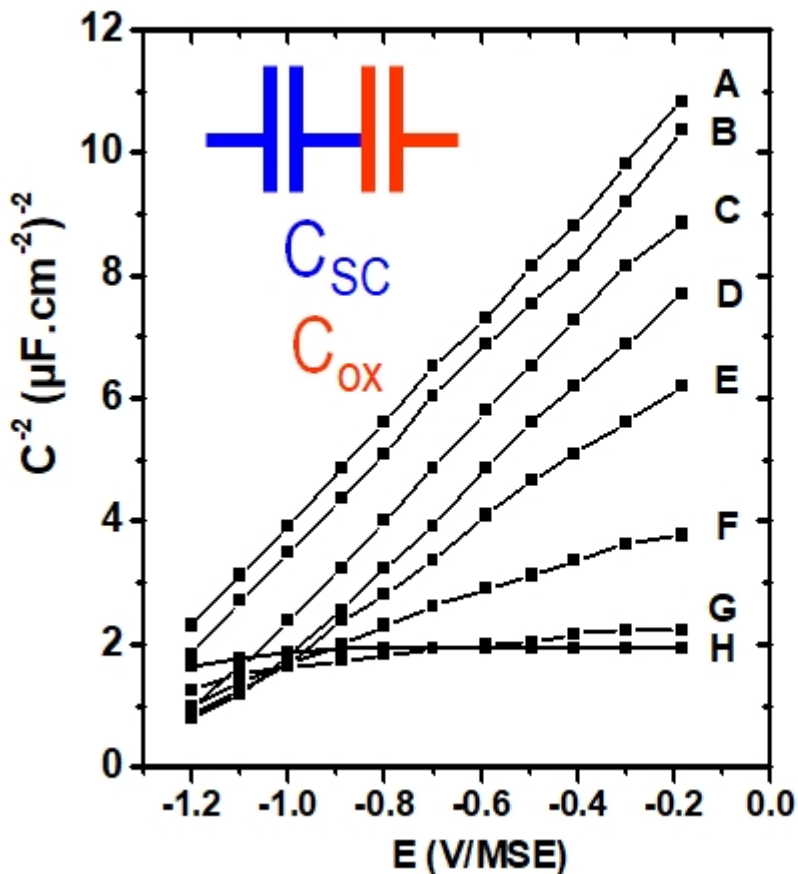
Two main themes are concerned in this scientific axis:

- fundamental electrochemistry on semiconductor (in water and in liquid ammonia)
- electrodeposition of metals for advanced connectivity in optoelectronics and photovoltaics



Fundamental electrochemistry in water

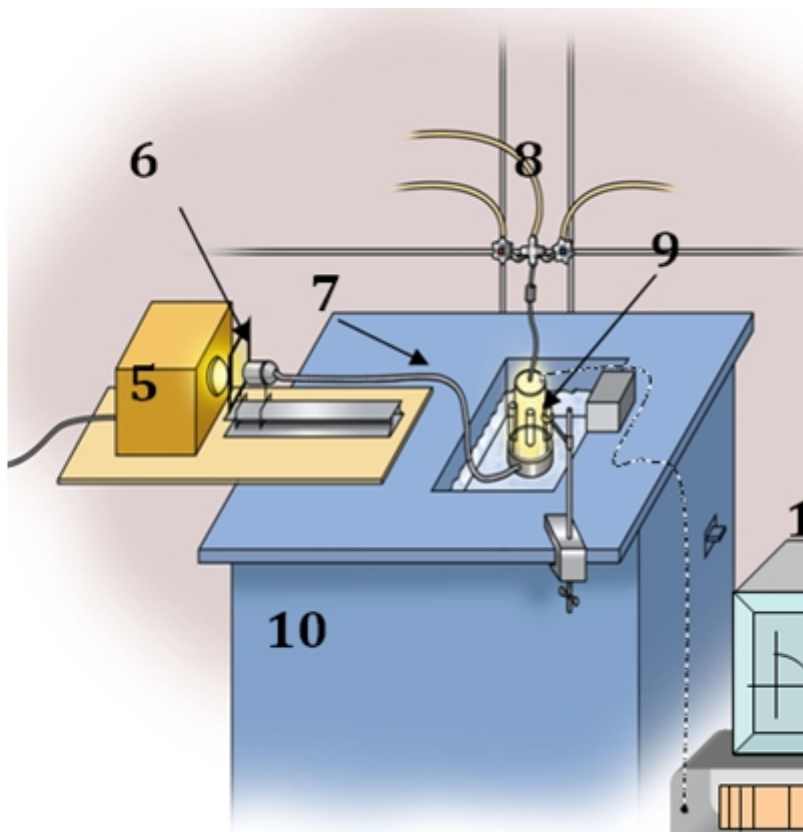
The study of semiconductors in aqueous medium allows the monitoring of the controlled growth of surface passivated oxide films. The surface modification is followed by electrochemical methods: impedance, photopotential and redox probe and the new chemical environments are studied by spectroscopy



Fundamental electrochemistry in liquid ammonia

The EPI group has an unique control of electrochemistry in liquid ammonia. This field of competence is considerable as regards of the fundamental concepts managing the semiconductor / electrolyte interfaces. The formation of a stable and passivating phosphazene type film is really promising. (3 patents, ANR Epinal 2017-2020)

Functionalization tasks are currently evaluated.



Electrodeposition

The development of electrodeposition of different materials (copper, nickel, ZnO, etc.) is carried out in the group on mainly semiconductor substrates (boron doped diamonds, silicon, etc.). Chemical deposits are controlled by potential, current or open circuit. The influence of interfacial pH and additives is particularly studied for the control of the final

properties in terms of adhesion, compactness, morphology, thickness

