



Contribution ID: 67

Type: **Talk**

Structure of a deep eutectic solvent at the silicon surface

Tuesday, 10 December 2019 15:42 (15 minutes)

The main aim of this work is to reveal the structure of the layers formed at the interface between deep eutectic solvents (DES) and silicon surface with and without applied constant electric potential using neutron reflectometry (NR) and molecular dynamics simulations (MDs). Work is focused on finding experimental evidence for an ordered layer of DES over an Si substrate under DC conditions and resolving the destruction of this layer by a superimposed AC field. Electrochemical experiments have shown that application of the potential of -1.6V superimposed with alternating sinusoidal component of 50 mV allows zinc deposition. Increasing temperature has the same effect and at 100 degrees C electrodeposition is possible even in potentiostatic regime. The results obtained with REFSANS instrument at Heinz Maier-Leibnitz Zentrum (MLZ) are compared with the reflectivity calculated from molecular dynamics simulations. Through this work we tend to determine the relationship between NR measurements of DES/silicon interface and the corresponding structural information obtained by MD simulations of the same system.

Primary author: ZEC, Nebojša (Helmholtz-Zentrum Geesthacht, GEMS at MLZ)

Co-authors: MANGIAPIA, Gaetano (German Engineering Materials Science Centre (GEMS) am Heinz Maier-Leibnitz Zentrum (MLZ)); Prof. ZHELUDKEVICH, Mikhail (Helmholtz Zentrum Geesthacht); MOULIN, Jean-Francois (HZG); BUSCH, Sebastian (GEMS at MLZ, HZG)

Presenter: ZEC, Nebojša (Helmholtz-Zentrum Geesthacht, GEMS at MLZ)

Session Classification: Materials Science

Track Classification: Materials Science