



# SISMA

Séminaire Informatique Scientifique & Mathématiques Appliquées

**Corrosion of iron in an underground repository: a new thermodynamically consistent model and some theoretical and numerical results**

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The modelling and the numerical simulation of corrosion take part in the general description of the nuclear waste repository. The derivation of models that are accurate in the long-time regime is a challenge, especially in this context. In this talk, I will start by recalling the Diffusion Poisson Coupled Model introduced by Bataillon et al. in 2010 and I will show how some minor corrections lead to a thermodynamically consistent model. This model consists in a drift-diffusion-Poisson system of equations on a moving domain. I will review the mathematical results we recently obtained for this model and the main issues we are currently considering.