Flooding in porous media

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Liquid production and transport within porous media is known to effect the performance of a wide range of technologies (fuel cells, venting, general catalysis, etc). In fuel cells, for example, Water and acid are produced in a catalyst layer as a product of surface adsorption reactions. Once significant liquid is produced, it can push into the gas diffusion layer (GDL) and inhibit transport paths of reactants to the catalyst layer. A deeper understanding of fluid evolution within the porous media may help to engineer more effective liquid management solutions. Our goal in this workshop is to develop a mathematical model to predict and characterize fluid production/transport inside porous media. We are particularly interested in quantifying/predicting the time scale and spatial profile of flooding.