

Strain Localization in Porous Rocks (Thomas Dewers and Kathy Issen)

Porous rocks exhibit a range of deformational responses under stress conditions typical of the earth's subsurface. Understanding these, and quantifying behavior constitutively, is needed for a variety of sub-surface geo-engineering pursuits including oil and gas production and exploration, and carbon sequestration in saline formations. An important aspect of time-independent deformation of porous rocks is the transition between localized deformation in the form of shear and compaction bands (i.e. concentrated tabular zones of strain in rock that lack a discrete surface of discontinuity), and spatially pervasive pore collapse. The formation and development of compaction localization can have serious consequences for reservoir quality. This session invites experimentalists, theoreticians, and field geologists together to interact on a variety of topics surrounding strain localization in porous rocks. These can include but are not limited to experimental studies, discrete and finite element modeling methods, field documentation and interpretation, and constitutive modeling.