

In rocks, specific features exist at all observation scales, and include deformation structures (as fractures, fault, stylolites, crystal twins) and distinctive patterns (as rhythmic banding, growth rings, and reaction front). Advances in physics together with refined geological interpretation showed that those features are most of the time privileged witness of the medium history, resulting of processes controlled by physical forces and/or chemical potential evolution. A better understanding of which parameter controls the formation and evolution of a structure or a pattern allows inversion, which so far led to the development of tools to reconstruct important process occurring in the crust, as fluid flow and complex fluid-rock interactions, past-stress evolution, and earthquake tectonics. Numerous industrial problematic are affected by those processes, including CO<sub>2</sub> sequestration, ore and hydrocarbons resources, radioactive waste disposal, and soil remediation.

This session aims at summarize the latest advances in both physic and geology that enhance our understanding of the process that control structures and pattern, in fractured/ deep tight/ porous granular rocks. We welcome contributions that focus on the role of paleostress and/or fluid flow, including experimental/numerical models, methodological contributions for inversion, and reconstruction of stress/fluid flow history at local or regional scale based on field observations.