
Preface

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Biographical notes: Duoxing Yang is a Full Professor in the Institute of Crustal Dynamics, CEA. His research interests involve heat and mass transfer in porous media. He holds a PhD in Hydrology. He is an editorial board member of *International Journal on Numerical and Analytical Method in Engineering* (IRENA).

Deliang Zhang is a Senior Professor, conducting computational fluid dynamics. He receives his PhD in Fluid Mechanics. He proposes an updated space-time conservation element and solution element (CE/SE) method.

Recently, many important phenomena in geophysics and geology, including underground fluid injection induced micro-seismicity swarms, hydraulic fracturing in shale gas exploration, fault activation and ground deformation induced by fluid injection into reservoirs, fracture propagation in sedimentary rock, coal and gas outburst as well as and other geophysical inversion and explanation have involved the fluid-solid interaction and fluid dynamics mechanism. Numerical simulation of fluid-solid interaction and fluid dynamics for above-mentioned geophysical and geological phenomena is still a matter of current research.

This special issue focuses on the advancement of numerical methods for fluid-solid interaction mechanism and other relevant flow problems in the field of the geophysical fluids, and serves as a technical information exchange for the geophysical fluids community throughout the world. The accepted papers in this special issue include six topics:

- 1 mechanism on fluid-solid interaction for seismicity swarms induced by gas exploration
- 2 incremental algorithm for seismic wave propagation in fluid saturated porous media
- 3 fundamental theory and its modelling for coal and gas outburst
- 4 multiphase flows for carbon dioxide geological storage
- 5 hydrofracturing mechanism and numerical methods for enhancing rock permeability and connectivity of shale gas reservoir
- 6 further geophysical flow phenomena.