Special Issue

Advanced Computational Techniques for Fractured Rock Hydrology

Message from the Guest Editor

Fractured rock hydrology is a subset discipline of strategical engineering sectors, such as geothermal energy, radioactive nuclear waste disposal, oil engineering, CO_2 geological storage, fracking and groundwater resources. From the viewpoint of a computational analyst, the prediction of fluid flow and transport in fractured rocks is challenging, in consideration of the peculiarities of such media: Heterogeneity, scale-dependence, and directionality. Models require advanced mathematical tools in all the stages of setup: Acquisition of the physical and geometrical features of the rock mass, by using statistical inference procedures from data measured on observational outcrops and through pumping tests; definition of the appropriate equivalent medium for the simulations, i.e., a continuum-like medium or a discrete fracture network, and the related parameters; solution of the partial differential equations of the model, that, especially for discrete fracture networks, may require massive parallelization. In this Special Issue call, the aim is to offer the state-of-the-art of the most advanced computational tools for the discipline.

Guest Editor

Dr. Corrado Fidelibus

DICATECh, Politecnico di Bari, 70125 Bari, Italy

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Prof. Dr. Oliver Schütze
Depto de Computacion, Cinvestav, Mexico City 07360, Mexico

Prof. Dr. Gianluigi Rozza
SISSA mathLab, International School for Advanced Studies, Office A-435, Via Bonomea 265, 34136 Trieste, Italy

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