Complex Flows through Multi-scale Porous Media with Variable Dead Core

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Abstract: Mathematical models of complex flows through porous media with variable dead core arise in particular from describing so different systems as deposits in natural formations and biosystems in the context of their physiology. The study will address questions on remote impact of locally acting external process activations. Multi-scale structures of the media reflect real applied situations that in particular refer to the physiology of biological systems. An interplay between the variable geometry of the active domain and the impact of its multi-scale nature will be explored on the level of discrete counterparts of the models.

Numerical models will be studied for a class of prototype systems and heir results will be used for validation purposes.

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