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Aplikasi automata gas kisi untuk mengestimasi permeabilitas retakan batuan

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Abstrak

This paper presents a methods for estimating permeability of porous media based on lettice gas automata (LGA) methods. LGA is a relatively recent methods developed to perform hydrodynamic calculations. The methods , in its simplest form consists of a regular lattice populated with particles that hop from site to site in discrete time steps in a process, called prppagation. After propagation , the particles in each site interact with each other in a process called collision,in which the number of particles an momentum are conserved. An exclusion principle is imposed in order to achieve better computational efficiency. Permeability estimation of fractured rocks based on image analysis was conducted using lattice gas automata . Fractured rocks samples collected from Bukit Kaba, Bengkulu were analyzed to study fluid flow parameter, i.e. permeability and porosity. For time - ste 1.047 and radius 0,60 cm, the permeability is equal to 2,55.10 Darcy while for time - step 1, 437 and radius 0,19 cm, the permebiality is equal to 1,62.10 Darcy.