In this issue

Research Article

Dynamics of Destruction of Two-dimensional Analog Models Discrete Environments with Different Organization of their Structural Compositions

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Based on the main phenomenological features of the Coulomb-Navier rheological body, several most characteristic simulated models of discrete environments with different structural compositions have been proposed. Mechanical testing of the specified simulator models allows for investigating the dynamics of deformation (restructuring of composition) of discrete (includi ...

Abstract View   Full Article View   DOI: 10.17352/amp.000133

Short Communication

Rayleigh Quotient and Surjectivity of Nonlinear Operators in Hilbert space

Author(s): Raffaele Chiappinelli*

We consider continuous operators acting in a real Hilbert space and indicate conditions ensuring their continuous invertibility and/or surjectivity. In the case of bounded linear operators, these facts are well-known from basic Functional Analysis. The objective of this work is to indicate how similar properties can be proved also when the operators are not necessaril ...

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Perspective Study

Algebraic Cubic Equation *vs.* Freedman Equations for the Geometry of our Universe

Author(s): S Kalimuthu*

In 1921 the famous Russian mathematician Alexander Freedman proved by analyzing Einstein's general relativity that the geometry of our Universe has three possibilities namely Euclidean, Hyperbolic, and Spherical. Various cosmological experimental and observational probes of BOOMERanG, NASA's WMAP, and ESA's PLANCK mission revealed that the shape of our universe is fla ...