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Editorial

Dynamical Processes in Heterogeneous and Discrete Media

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There is no need to talk about the wide spreading of dynamic processes in nature, or about the infrastructure created by man. Pure and applied mathematicians, mechanics, physicists, engineers, and biologists already deal with various features of these processes. Analytical, experimental, and computer methods are being used to solve the corresponding problems. In turn, the new problems arising in engineering, biology, and physics contribute to the development of mathematics and computer science. New mathematical models are being constructed, and known models are being modernized, in order to more adequately describe the processes currently under study. Some trends can be traced by analyzing the papers published in this volume.

Mathematicians may be of interest to aid in the effective use of asymptotic methods (Prikazchikova [1]; Bochkarev et al. [2]; Andrianov et al. [3]), applications of the methods of Padé approximants, and other summation and interpolation procedures (Gluzman [4]; Andrianov et al. [5]; Bochkarev et al. [2]). Nonlinear ODEs and PDEs are analyzed in the papers by Althubidi et al. and Bochkarev et al.

Various physical objects are also studied in this volume: multi-layered elastic strips (Prikazchikova [1]); nonlinear cylindrical shells (Bochkarev et al. [2]); drill-strings (Khajiyeva et al. [6]), energy exchange (Pilipchuk [7]).

Considerable attention is paid to physical phenomena such as linear (Andrianov et al. [5]) and nonlinear (Bochkarev et al. [2] waves and oscillations (Khajiyeva et al. [5], Althubiti et al. [8])) phase transitions (Gluzman [4]).

An important question about the relationship between discrete and continuum dynamic models is analyzed in a paper by Andrianov et al. [3].

The papers by Khadjieva et al. [6] and Bochkarev et al. [2] are of interest from an engineering point of view.

I hope this volume is of interest to scientists from the many fields of Applied Mathematics, Mechanics, and Physics.

Conflicts of Interest: The author declares no conflict of interest.

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