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MICROGRAVITY INVESTIGATION OF CAPILLARY-DRIVEN IMBIBITION INTO AN
INHOMOGENEOUS POROUS MEDIUM.**Abstract**

The paper considers the process of imbibition in a porous medium under the action of capillary forces in microgravity. A description of experiments on the repeated imbibition of an artificial porous medium during parabolic flights is given. In some experiments, the porous medium is homogeneous; in others, the experimental cell contains regions with different permeability. Particular attention is paid to the study of the dynamics of imbibition during the transition of the liquid front through the boundary of media with different permeability. The analysis of non-stationary and convective terms in the equation of momentum conservation and their influence on the imbibition process is carried out. The results of numerical modeling of the process of repeated imbibition under the action of capillary forces under microgravity in an inhomogeneous porous medium are presented. The results of numerical modeling are compared with experimental data. Russian Basic Research Foundation (project code 20-07-00378) is acknowledged for financial support.