

# Method of the speed up calculations by the local Courant number for the filtration problem

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## Abstract

© Published under licence by IOP Publishing Ltd. We study the process of multiphase fluid-water flow in a heterogeneous formation in the presence of both producing and injection wells. The quasi-three-dimensional reservoir model is considered, comprising several seams, which characteristics are considered as constant thickness. Perforated wells are also can be presented. The main feature of the problem is that there are appear the filtration areas with high gradients in surroundings of wells. An approximate method is based on a preliminary finite-difference approximation of the problem. For its numerical realization there is proposed the algorithm, which allows to speed up the calculation time for the transfer equation using the explicit scheme, which is optimized taking into account the spatial inhomogeneity of the calculation time step.

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