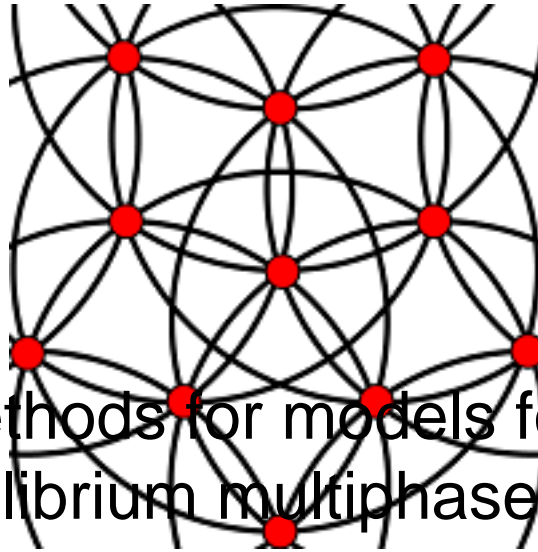


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IMEX methods for models for vertical equilibrium multiphase flow

Content :

IMEX methods are a suitable choice for the solution of nonlinear convection-diffusion equations, since the stability restrictions coming from the explicitly treated convective part, are much less severe than those that would be deduced from an explicit treatment of the diffusive term. We combine an explicit Runge-Kutta scheme for the convective part and an implicit one for the diffusive part. The application of these schemes to multiphase flow models requires the solution of highly nonlinear systems of equations. We show numerical examples that confirm the efficiency of the methods proposed.

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