Generalized multiscale discontinuous Galerkin method for solving heat problem of freezing and thawing process in soil

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In this work, we investigate a mathematical model of the heat transfer processes in the frozen and thawed soils. For the simulation of heat transfer processes with freeze/thaw the classic Stefan model is used. A mathematical formulation of the problem with appropriate initial and boundary conditions is stated.

We present results of numerical simulation of temperature regime on the example of engineering solutions of soil containing several installed piles.

Also for solution of this problem generalized multiscale discontinuous Galerkin method (GMsDGM) is considered. Mentioned method GMsDGM is based on the interior penalty discontinuous Galerkin method as the coarse grid solver.

References

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