

Sharp-interface approach to topology optimization problems constrained by variational inequalities

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Topology optimization problems for variational inequalities governing the contact phenomenon are considered. The aim of this optimization problem is to find such material distribution in domain occupied by the structure to minimize stress along the contact interface. In general, these optimization problems are non-smooth and non-convex. The existence of solutions to this optimization problem is shown. First-order necessary optimality conditions for regularized problem are formulated. Sharp-interface limit for this optimality system is shown. The application of Hadamard semi-derivative is discussed.

References

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