Primal-dual nonlinear rescaling method with dynamic scaling parameter update for the optimization arising from 3D contact problems

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Nonlinear rescaling (NR) is a tool for solving large-scale nonlinear programming problems. First, there are presented the basic ideas of the NR theory—the conversion of the original problem to the equivalent one, the analysis of this problem and the description of primal-dual nonlinear rescaling method with dynamic scaling parameter update (PDNRD). The application of PDNRD method to both smooth and non-smooth minimization problems is discussed. In the practical part, PDNRD method is applied to quadratic programming problems with quadratic constrains and to minimization of quadratic functional with conic constrains.

References

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