A Relative Inexact Proximal Gradient Method With an Explicit Linesearch.

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In this talk, we present and investigate an inexact proximal gradient method for solving composite convex optimization problems characterized by an objective function composed of a sum of a full domain differentiable convex function and a non-differentiable convex function. We introduce an explicit linesearch strategy that requires only a relative inexact solution of the proximal subproblem per iteration. We prove the convergence of the sequence generated by our scheme and establish its iteration complexity, considering both the functional values and a residual associated with first-order stationary solutions. Additionally, we discuss numerical experiments to illustrate the practical efficacy of our method.

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