

A trust region method for solving grey-box mixed integer nonlinear problems with industrial applications.

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We present theoretical and numerical results on a derivative free trust region method for mixed integer nonlinear problems with binary variables, which modifies the trust region by imposing local branching type constraints and cuts on the binary variables. The term grey-box in the title refers to the fact that some terms in the applications of interest to us, rather than being black-box, can be exploited directly in closed form. Results on a variety of applications will be included.