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First-Order Augmented Lagrangian Methods for Convex Conic Programming

In this talk, we propose some first-order augmented Lagrangian (AL) methods for solving a class of convex conic programming with adaptive update on penalty parameters and inexactness associated with the AL subproblems. We establish their first-order oracle complexity for finding an approximate Karush–Kuhn–Tucker (KKT) point. To our best knowledge, our complexity is the lowest one among all existing first-order AL methods for finding an approximate KKT point.