

# A primal dual partial inverse algorithm for constrained convex optimization

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In this talk, we study a constrained convex optimization problem involving a closed vector subspace and a priori information on primal solutions. We model this information by imposing that solutions belong to a nonempty closed convex set. We characterize the solutions using an auxiliary inclusion that involves the partial inverse operator. Then, we propose the primal-dual partial inverse splitting and we prove its weak convergence to a solution of the problem, generalizing several methods in the literature. The efficiency of the proposed method is illustrated in a variational mean field game with non-local couplings.

We refer the reader to [BADLRS23] for more details.

[BADLRS23] Luis Briceño-Arias, Julio Deride, Sergio López-Rivera, and Francisco J Silva. A primal-dual partial inverse algorithm for constrained monotone inclusions: Applications to stochastic programming and mean field games. *Applied Mathematics & Optimization*, 87(2):21, 2023.