

A finitely convergent circumcenter method for the convex feasibility problem

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Abstract

In this paper, we present a variant of the circumcenter method for the Convex Feasibility Problem (CFP), for which finite convergence is ensured under a Slater assumption. The method replaces exact projections onto the convex sets by projections onto separating halfspaces, perturbed by an exogenous perturbation parameter which decreases to zero along the iterations. If the perturbation parameters go to zero slowly enough (say, the series of the perturbation parameters diverges), then convergence is finite. This is to our knowledge, the first finitely convergent circumcenter method for CFP.

Joint work with R. Behling, J.Y. Bello Cruz, Di Liu and L.-R. Santos.

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