ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

On the centralization of the circumcentered-reflection method

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Chaired by Elena Resmerita | Department of Mathematics

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HS2 + https://classroom.aau.at/math-stat

ABSTRACT

We present the first circumcenter iteration scheme that does not employ a product space reformulation for finding a point in the intersection of two closed convex sets. We introduce a so-called centralized version of the circumcentered-reflection method (CRM). Developed with the aim of accelerating classical projection algorithms, CRM is successful for tracking a common point to a finite number of affine sets. However, in the lack of linear structure, CRM was shown to possibly diverge if Pierra's product space reformulation is not considered. In the present work, we find out that there exists an easily reachable region consisting of what we refer to as centralized points, where pure circumcenter steps possess properties leading convergence. The outcome algorithm is called centralized CRM (cCRM). In addition to having global convergence, cCRM converges linearly under an error bound condition and shows superlinear behavior in some of our numerical experiments.

We hope to see you there!

