Roots of the identity operator and proximal mappings: (classical and phantom) cycles and gap vectors

Shawn Xianfu Wang, The University of British Columbia

Abstract:

Recently, Simons provided a lemma for a support function of a closed convex set in a general Hilbert space and used it to prove the geometry conjecture on cycles of projections. We extend Simons's lemma to closed convex functions, show its connections to Attouch--Th\'era duality, and use it to characterize (classical and phantom) cycles and gap vectors of proximal
mappings. Joint work with H. Bauschke