Berlin Mathematics Research Center MATH+

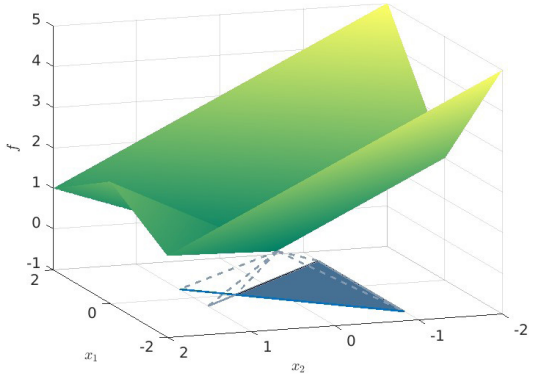
Berlin Mathematical School BMS

MATH+ Friday Colloquium

Friday 11 July 2025 at 14:15

FU Berlin, Computer Science Building, Takustr. 9, Large Lecture Hall

Tea & Cookies starting at 13:00



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(HU Berlin)

On optimality conditions for nonsmooth functions

Numerous optimization tasks exhibit a nonsmooth behavior. In contrast to the classical smooth case, where optimality conditions are well studied and understood, criteria to determine whether a given point is optimal or even just stationary are still the subject of ongoing research for nonsmooth functions to be minimized.

In this talk, Andrea Walther will first introduce already established optimality conditions based on generalized derivative concepts for unconstrained nonsmooth problems. Subsequently, she will discuss new optimality conditions for a large class of piecewise smooth functions using so-called kink qualifications. Here, the computational complexity to verify the new criteria is also covered. Finally, she will present important properties of the kink qualification LIKQ.

Andrea Walther is professor of Mathematical Optimization at HU Berlin and Chair of MATH+. She obtained her PhD at Technische Universität Dresden in 1999. There, she held several research positions, including a Junior Professorship, before obtaining her habilitation in 2008. In 2009, she moved to Universität Paderborn and kept her role as professor there until 2019 when she moved to Berlin. Her research focuses on nonlinear optimization, particularly in developing and analyzing adjoint-based optimization methods, new approaches for nonsmooth optimization, and optimization methods for machine learning. She is also interim vice-president of the ZIB Institute and she was recognized as SIAM fellow in 2025.

BMS Certificate Ceremony & MATH+ Summer Party
starting at 16:00 @ FU Berlin, ZIB lawn!

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