

1163-49-296

Ashkan Mohammadi* (amohamm@umn.edu). *Composite optimization in normed spaces with applications in semi-infinite programming and calculus of variations.*

This talk is devoted to developing and applications of a generalized differential theory of variational analysis that allows us to work in incomplete normed spaces, without employing conventional variational techniques based on completeness and limiting procedures. The main attention is paid to generalized derivatives and subdifferentials of the Dini-Hadamard type with the usage of mild qualification conditions revolving around metric subregularity. In this way we develop calculus rules of generalized differentiation in normed spaces without imposing restrictive normal compactness assumptions and the like and then apply them to general problems of constrained optimization. Most of the obtained results are new even in finite dimensions. Finally, we derive refined necessary optimality conditions for nonconvex problems of semi-infinite and calculus of variation. (This is a joint work with Boris Mordukhovich). (Received September 15, 2020)