

Berlin Mathematics Research Center

MATH+

Berlin Mathematical School

BMS

MATH+ Friday Colloquium

Friday 17 April 2020 at 14:15

Tea & Cookies starting at 13:00

Urania, An der Urania 17, 10787 Berlin

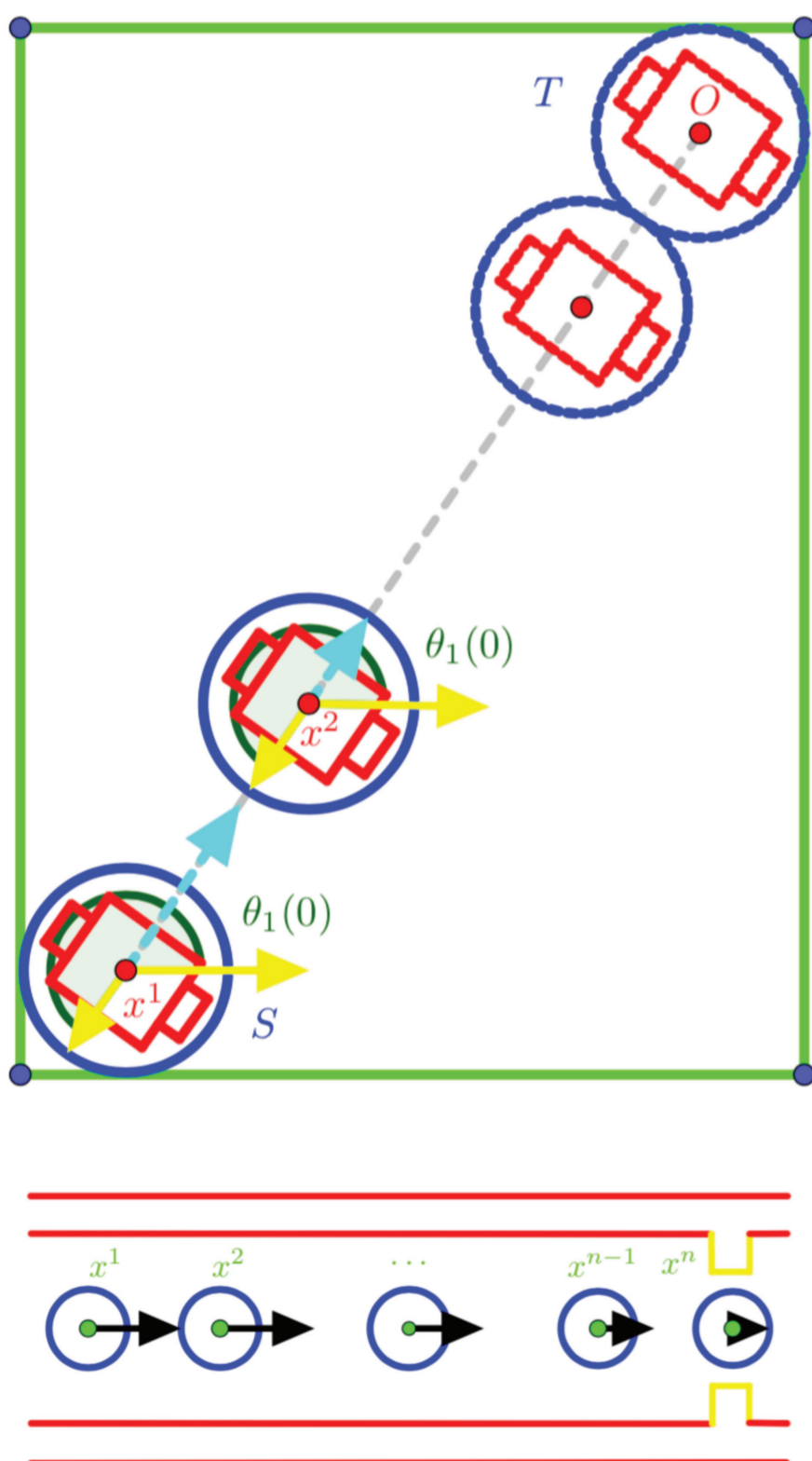
Boris Mordukhovich

(Wayne State U)

Optimal control of perturbed sweeping processes with applications

This talk is devoted to a new class of dynamic optimization problems for unbounded discontinuous differential inclusions governed by controlled versions of Moreau's sweeping process. To study such problems, we develop a refined method of discrete approximations and establish its well-posedness and strong convergence. This approach, married to advanced tools of first- and second-order variational analysis and generalized differentiation, allows us to derive adequate collections of necessary optimality conditions for local minimizers, first in discrete-time problems and then in the original continuous-time controlled sweeping process by passing to the limit. The necessary optimality conditions we obtain can be applied to practical models of robotics and traffic equilibria. The talk is based on joint research with Giovanni Colombo and Dao Nguyen.

Boris Mordukhovich was born and educated in the former Soviet Union, and is now a Distinguished University Professor of Mathematics at Wayne State University. He is an expert in optimization, variational analysis and applications. Mordukhovich is an AMS Fellow, a SIAM Fellow, and the recipient of many international awards including honorary doctorates from six universities worldwide. He was the founding editor of the journal *Set-Valued and Variational Analysis*. In 2016, he was elected to the Accademia Peloritana dei Pericolanti (Italy).



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