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**Giovanni Colombo, Boris S. Mordukhovich and Dao Nguyen\*** (gc9683@wayne.edu),  
Detroit, MI 48202. *Optimal control of a perturbed sweeping process.*

This talk deals with an optimal control problem for a perturbed sweeping (Moreau) process, where control function is in additive perturbations on the right-hand side of the dissipative differential inclusion without changing the moving set and merely measurable without any Lipschitzian. It should be emphasized that the velocity mapping in the differential inclusions under consideration is highly non-Lipschitz, unbounded and the control is just measurable, which cannot be treated by means of known results in optimal control for differential inclusions. To overcome such principal issues, we develop the method of discrete approximations married with catching-up algorithm and combine it with appropriate generalized differential tools of modern variational analysis, which allows us to adequately replace the original optimal control problem by a sequence of well-posed finite-dimensional optimization problems whose optimal solutions strongly converge to that of the original controlled perturbed sweeping process. Then we use this direct method to obtain nondegenerate necessary optimality conditions for the so-called intermediate relaxed local minimum of the controlled sweeping process. Furthermore, the established necessary optimality conditions are illustrated by several examples. (Received February 06, 2018)