

**Lianwen Wang** ([lwang@math.wayne.edu](mailto:lwang@math.wayne.edu)), Department of Mathematics, Wayne State University, USA, *Optimal Control of Constrained Delay-Differential Inclusions with Set-Valued Tail Conditions*

The paper studies a general optimal control problem for nonconvex delay-differential inclusions with endpoint constraints. We incorporate set-valued ‘tail’ conditions for the initial interval, which provide an additional source for optimization. Our variational analysis is based on well-posed discrete approximations of constrained delay-differential inclusions by a family of time-delayed systems with discrete dynamics and perturbed constraints. Using convergence results for discrete approximations and advanced tools of nonsmooth variational analysis, we derive necessary optimality conditions for constrained delay-differential inclusions in both Euler-Lagrange and Hamiltonian forms, involving nonconvex generalized differential constructions for nonsmooth functions, sets, and set-valued mappings. This is joint work with Boris Morukhovich.