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Strong Stationarity for the Control of Viscous History-Dependent Evolutionary VIs Arising in Applications

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Abstract: This talk addresses optimal control problems governed by history-dependent EVIs with viscosity. One of the prominent properties of the state system is its non-smooth nature, so that the application of standard adjoint calculus is excluded. We show that history-dependent EVIs with viscosity can be formulated as non-smooth ODEs in Hilbert space in a general setting. The Hadamard directional differentiability of the solution map is investigated. Based on previous results, this allows us to establish strong stationary conditions for viscous damage models with fatigue.