Optimal control of implicit sweeping processes using coderivative of the metric projection

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In this talk, we will investigate a maximum principle for a class of optimal control problems governed by implicit sweeping process with general endpoint constraints by using the coderivative of the metric projection mapping. The swept set is assumed to be polyhedral and depends on the control while the nonautonomous dynamic governing the optimal control problem depends simultaneously on the state and the control. This dependence appears in the differential inclusion but also in the (force) perturbation term. To do this, we compute the coderivative of the metric projection mapping onto a polyhedral convex set.