Differentiability of the Solution Operator of a Sweeping Process

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Abstract

We show that the solution operator for a sweeping process (equivalently, the stop operator of hysteresis, or a certain energetic system) possesses a directional derivative if the convex constraint has a smooth boundary or is a polyhedron of a certain type. The derivative satisfied a variational system where the Kurzweil integral crucially enters. We indicate applications to optimal control.

References

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