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On the Second-Order Contingent Set and Differential Inclusions

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Abstract: In this paper, we establish the existence of solutions of a nonconvex second order differential inclusion of the following type:
\stackrel{..}{x}(t)\in F(x(t), \stackrel{.}{x}(t)) \text{ a.e, } x(0)=x_0\in K, \stackrel{.}{x}(0)=v_0\in \Omega,
such that $x(t)\in K$, where K is a closed subset and Ω is an open subset of $\mathbb{R}^n$. When K is in addition convex, we introduce the contingent cone T_K to prove the existence of solutions of the differential inclusion:
\stackrel{..}{x}(t)\in G(x(t),\stackrel{.}{x}(t)) \text{ a.e, } x(t)\in K \text{ and } \stackrel{.}{x}(t)\in T_K(x(t))

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