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Some averaging results for ordinary differential inclusions

The averaging method was studied for differential inclusions by many authors using different and rather restrictive conditions on the regularity of their right- hand sides. We consider ordinary differential inclusions of the form

$$\dot{x}(t) \in F\left(\frac{t}{\varepsilon}, x(t)\right) \quad (1)$$

where $\varepsilon > 0$ denotes the small perturbation parameter, the time variable $t \in [0, L]$ and F is a multifunction with values that are nonempty compact convex subsets of \mathbb{R}^d . We state and discuss some averaging results for these inclusions. Our results are proved under weaker conditions on the regularity of F than found in the literature.