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Nota di contenuto	1 Introduction -- 2 Mathematical Setting & Motivation -- 3 Strong (in) stability of differential inclusions & Lyapunov characterizations -- 4 Weak (in)stability of differential inclusions & Lyapunov characterizations -- 5 Outlook & Further Topics -- 6 Proofs of the Main Results -- 7 Auxiliary results -- 8 Conclusions.
Sommario/riassunto	Lyapunov methods have been and are still one of the main tools to analyze the stability properties of dynamical systems. In this monograph, Lyapunov results characterizing the stability and stability of the origin of differential inclusions are reviewed. To characterize instability and destabilizability, Lyapunov-like functions, called Chetaev and control Chetaev functions in the monograph, are introduced. Based on their definition and by mirroring existing results on stability, analogue results for instability are derived. Moreover, by looking at the dynamics of a differential inclusion in backward time, similarities and differences between stability of the origin in forward time and instability in backward time, and vice versa, are discussed. Similarly, the invariance of the stability and instability properties of the equilibria of differential equations with respect to scaling are summarized. As a final result, ideas combining control Lyapunov and control Chetaev

functions to simultaneously guarantee stability, i.e., convergence, and instability, i.e., avoidance, are outlined. The work is addressed at researchers working in control as well as graduate students in control engineering and applied mathematics.

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