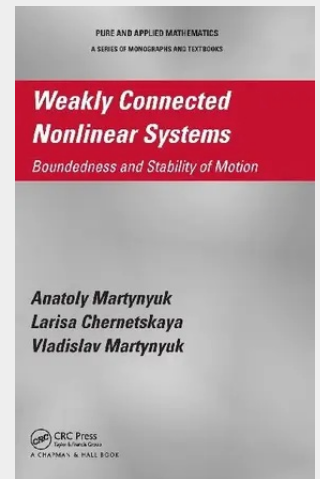


Weakly Connected Nonlinear Systems

Boundedness and Stability of Motion

Weakly Connected Nonlinear Systems: Boundedness and Stability of Motion provides a systematic study on the boundedness and stability of weakly connected nonlinear systems, covering theory and applications previously unavailable in book form. It contains many essential results needed for carrying out research on nonlinear systems of weakly connected equations. After supplying the necessary mathematical foundation, the book illustrates recent approaches to studying the boundedness of motion of weakly connected nonlinear systems. The authors consider conditions for asymptotic and uniform stability using the auxiliary vector Lyapunov functions and explore the polystability of the motion of a nonlinear system with a small parameter. Using the generalization of the direct Lyapunov method with the asymptotic method of nonlinear mechanics, they then study the stability of solutions for nonlinear systems with small perturbing forces. They also present fundamental results on the boundedness and stability of systems in Banach spaces with weakly connected subsystems through the generalization of the direct Lyapunov method, using both vector and matrix-valued auxiliary functions. Designed for researchers and graduate students working on systems with a small parameter, this book will help readers get up to date on the knowledge required to start research in this area.

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