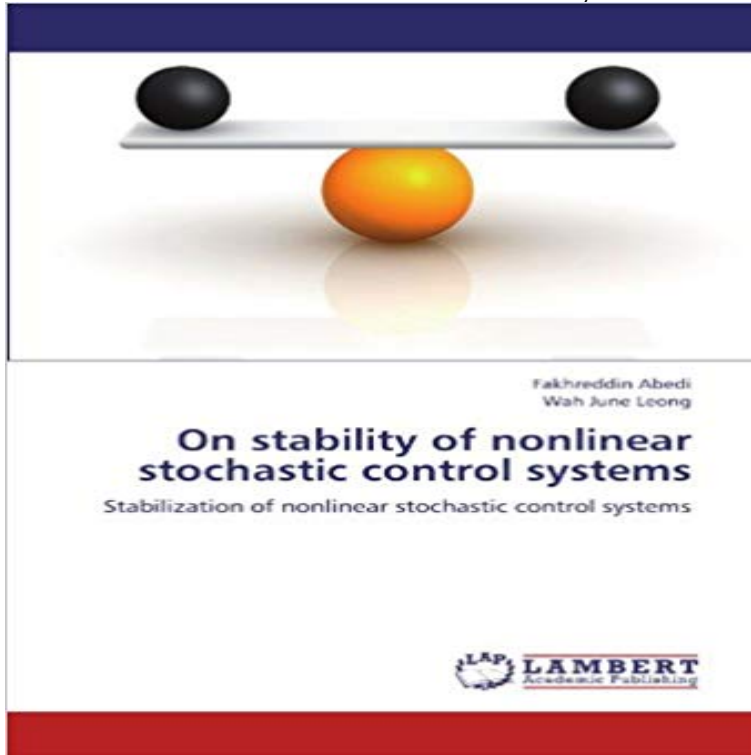


# On stability of nonlinear stochastic control systems: Stabilization of nonlinear stochastic control systems



The subject of stability theory for nonlinear control systems by method of Lyapunov has been studied considerably for many years and one of its branches, the stochastic form of this systems has been investigated by a number of researchers. Lyapunov method that originally developed for deterministic systems has been extended to stochastic systems. The stochastic version of the Lyapunov theorem obtains necessary and sufficient conditions for the stability of stochastic control systems at their equilibrium state. Although the stabilization of stochastic control systems by the method of Lyapunov is of great importance in control theory problems, but there are very few researches on these systems. These motivate us to employ Lyapunov method to extend stabilization results for deterministic control systems to a wider class of stochastic control systems driven by a Wiener process. The material that we provide in this book is both wonderfully practical and rich in research opportunities. It has connections to Physics, Mathematics, control theory and stochastic process.

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