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   Titolo   High-Speed Maglev Train's Levitation and Guidance Control : The Key
                        Technologies / / by Zhiqiang Long, Zhiqiang Wang, Mingda Zhai,
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   Descrizione fisica   1 online resource (259 pages)

   Collana   Advances in High-speed Rail Technology, , 2363-5029

   Disciplina   338.064

   Soggetti   Railroad engineering
                        Automatic control
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   Lingua di pubblicazione   Inglese

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   Livello bibliografico   Monografia

   Nota di bibliografia   Includes bibliographical references.

   Nota di contenuto   Introduction -- Technology analysis of EMS high-speed maglev system
                        -- Controller design of high-speed maglev train levitation system --
                        Controller design of high-speed maglev train guidance system --
                        Performance evaluation of levitation control system -- Performance
                        evaluation of guidance control system -- Control Technology of High-
                        Speed PEM Hybrid Levitation System -- Fault Diagnosis of High-Speed
                        PEM Hybrid Levitation System -- Fault Tolerant Control of High-Speed
                        PEM Hybrid Levitation System.

   Sommario/riassunto   This book highlights the system modeling, control, diagnosis and
                        fault-tolerant design of the suspension, and guidance system of the
                        high-speed maglev train based on electromagnetic suspension
                        technology. The electromagnetic suspension technology has been
                        widely used in real-life engineering, including maglev trains, magnetic
                        bearings, magnetic levitation vibration isolators, magnetic suspension
                        and balance systems for wind tunnels, etc. Based on the academic

researches, engineering applications, and technical innovations of high-speed maglev trains carried out by the maglev team of the National University of Defense Technology, this book summarizes the technical achievements in the field of levitation and guidance control technology of high-speed maglev train. It analyzes the research status and challenges of the suspension control technology of the electromagnetic suspension maglev train. The suspension, guidance system modeling, and controller design of the high-speed maglev train are described in detail. The performance index and performance evaluation method of the levitation and guidance system under various working conditions are analyzed respectively. A suspension scheme of permanent magnet electromagnetic hybrid suspension high-speed maglev train is proposed, and the results of the vehicle test are given in order to further improve the suspension energy consumption and heating of electromagnetic suspension high-speed maglev train. The suspension and guidance fault diagnosis and tolerant control methods of the high-speed maglev train are studied to improve the system's safety and reliability. The research and application results of suspension control technology of electromagnetic suspension maglev train are fully displayed for readers. This book is intended for researchers, scientists, engineers, and graduate students involved in the rail transit industry, train control and diagnosis, and maglev technology.