1.	Record Nr.	UNINA9910821560803321
	Titolo	Active control of vibration / / C.R. Fuller and S.J. Elliott and P.A. Nelson
	Pubbl/distr/stampa	London, : Academic Press, 1996
	ISBN	1-281-11184-8 9786611111847 0-08-052591-1
	Edizione	[1st ed.]
	Descrizione fisica	1 online resource (345 p.)
	Altri autori (Persone)	FullerC. R ElliotS. J NelsonP. A
	Disciplina	620.1 620.3
	Soggetti	Vibration Noise control Damping (Mechanics)
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Front Cover; Active Control of Vibration; Copyright Page; Contents; Preface; Chapter 1. Introduction to Mechanical Vibrations; 1.1 Introduction; 1.2 Terminology; 1.3 Single-degree-of-freedom (SDOF) systems; 1.4 Free motion of SDOF systems; 1.5 Damped motion of SDOF systems; 1.6 Forced response of SDOF systems; 1.7 Transient response of SDOF systems and the use of the Laplace transform; 1.8 Multi-degree-of-freedom (MDOF) systems; 1.9 Free motion of MDOF systems; 1.10 Forced response of MDOF systems; 1.11 Damped motion of MDOF systems 1.12 Finite element analysis of vibrating mechanical systemsChapter 2. Introduction to Waves in Structures; 2.1 Introduction; 2.2 Longitudinal waves; 2.3 Flexural waves; 2.4 Flexural response of an infinite beam to an oscillating point force; 2.5 Flexural wave power flow; 2.6 Flexural response of an infinite thin beam to an oscillating line moment; 2.7 Free flexural motion of finite thin beams; 2.8 Response of a finite thin beam to an arbitrary oscillating force distribution; 2.9 Vibration of thin plates; 2.10 Free vibration of thin plates

	<ul> <li>2.11 Response of a thin rectangular simply supported plate to an arbitrary oscillating force distribution2.12 Vibration of infinite thin cylinders; 2.13 Free vibration of finite thin cylinders; 2.14 Harmonic forced vibration of infinite thin cylinders; Chapter 3. Feedback Control;</li> <li>3.1 Introduction; 3.2 Single-channel feedback control; 3.3 Stability of a single-channel system; 3.4 Modification of the response of an SDOF system; 3.5 The effect of delays in the feedback loop; 3.6 The state variable approach; 3.7 Example of a two-degree-of-freedom system;</li> <li>3.8 Output feedback and state feedback</li> <li>3.9 State estimation and observers3.10 Optimal control; 3.11 Modal control; Chapter 4. Feedforward Control; 4.1 Introduction; 4.2 Single channel feedforward control; 4.3 The effect of measurement noise; 4.4 Adaptive digital controllers; 4.5 Multichannel feedforward control; 4.6 Adaptive frequency domain controllers; 4.7 Adaptive time domain controllers; 4.8 Equivalent feedback control of Vibration; 5.1 Introduction; 5.2 Piezoelectric material and definitions; 5.3 Piezoelectric stack actuators</li> <li>5.4 Piezoelectric one-dimensional anti-symmetric wafer actuators; 5.6 Piezoelectric cone-dimensional anti-symmetric wafer actuators; 5.6 Piezoelectric distributed sensors; 5.8 Modal estimation with arrays of point sensors; 5.9 Wavenumber estimation with arrays of point sensors; 5.10 Wave vector filtering with arrays of point sensors; 5.11 Shape memory alloy actuators and sensors; Chapter 6. Active Control of Vibration in Structures; 6.1 Introduction; 6.2 Feedforward control of finite structures</li> </ul>
Sommario/riassunto	This book is a companion text to Active Control of Sound by P.A. Nelson and S.J. Elliott, also published by Academic Press. It summarizes the principles underlying active vibration control and its practical applications by combining material from vibrations, mechanics, signal processing, acoustics, and control theory. The emphasis of the book is on the active control of waves in structures, the active isolation of vibrations, the use of distributed strain actuators and sensors, and the active control of structurally radiated sound. The feedforward control of deterministic disturbances,