1.	Record Nr.	UNINA9910677840703321
	Autore	Wenzel Helmut
	Titolo	Health monitoring of bridges [[electronic resource] /] / Helmut Wenzel
	Pubbl/distr/stampa	Chichester, U.K., : Wiley, 2009
	ISBN	1-282-00381-X
		9786612003813
		0-470-74017-5
		0-470-74018-3
	Descrizione fisica	1 online resource (656 p.)
	Disciplina	624.2028/7
		624.20287
		624.25
	Soggetti	Bridges - Inspection
		Bridge failures - Prevention
	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 (p. (592-600) and indexes.
	Nota di contenuto	HEALTH MONITORING OF BRIDGES; Contents; Figures; Tables; Foreword; List of Contributors; Preface; Acknowledgments; 1 Introduction and Motivation; 1.1 Health Monitoring; 1.2 Client Requirements and Motivation; 2 Bridge Management and Health Monitoring; 2.1 Bridge Management Philosophy; 2.2 Structural Health Monitoring; 2.3 Examples of Bridge Management Systems; 2.4 Protection of Bridges against Man-Made and Natural Hazards; 3 Bridge Rating and Risk Assessment; 3.1 Inspection Rating; 3.2 The BRIMOS® Rating; 3.3 Probabilistic Approach in SHM; 3.4 Risks from Natural Hazards 3.5 Vehicle and Ship Impact3.6 Man-Made Hazards; 4 Damage Detection and Assessment; 4.1 Weak Point Detection and Fatigue Assessment; 4.2 Condition Compensation in Frequency Analyses; 4.3 Model Updating and System Identification; 4.4 Performance Assessment (Damping, Time-Histories); 4.5 Discussion of the SHM Axioms; 4.6 Safety Assessment; 5 Decision Support Systems; 5.1 Decision Support Systems for SHM; 5.2 Architecture; 5.3 The Operation Modes; 5.4 Monitoring System and Databases; 5.5 Current Status of the System;

	 5.6 Data Treatment; 5.7 Data Storage; 6 Lifetime Assessment of Bridges 6.1 Lifetime Assessment Procedure6.2 Hot-Spot Detection; 6.3 Statistical Pattern Recognition; 6.4 Application Example: Steel Bridge; 6.5 Ongoing Research and Development Projects; 7 Bridge SHM Methodologies; 7.1 Ambient Vibration Monitoring; 7.2 Deflection and Displacement Monitoring; 7.3 Fatigue Assessment by Monitoring; 7.4 Corrosion, Carbonization, Chlorite Content; 7.5 Load Transfers; 7.6 Material Properties; 8 The Business Case for SHM of Bridges; 8.1 Incentives for SHM of Bridges; 8.2 The Costs of SHM of Bridges; 8.3 The Future of the SHM Business; 8.4 Typical SHM Service Catalogue 9 Applications9.1 Melk Bridge M6 Austria; 9.2 Porr Bridge, Vienna, Austria; 9.3 Warth Bridge, Austria; 9.4 Putlitz Bridge, Berlin, Germany; 9.5 Westend Bridge, Berlin, Germany; 9.6 Neisse Viaduct, Zittau, Germany; 9.7 Commodore John Barry Bridge, Delaware River, USA; 9.8 Bridge BE 109/21, B utzberg, Switzerland; 9.9 RAMA IX Bridge, Bangkok, Thailand; 9.10 Titulcia Steel Bridge, Madrid, Spain; 9.11 Sz echenyi Bridge, Gyor, Hungary; 9.12 ESK 551 Bridge, Bad Bevensen, Germany; 9.13 The New Arsta Railway Bridge, Bordeaux, France; 9.18 Øresund Bridge, Denmark - Sweden; 9.19 Ting Kau Bridge, Hong Kong, China; 9.20 Skovdiget Bridge Columns, Denmark; 9.21 Skovdiget Bridge Superstructure, Denmark; 9.22 Bolshoj Moskvoretsky Bridge, Moscow, Russia; 9.23 Versoix Bridge, Geneva, Switzerland; 9.24 Tsing Ma Bridge, Hong Kong, China; 9.25 A14 Huntingdon Railway Viaduct, England; 9.26 Highway Bridge BW91, Germany; 9.27 Herrenbr ucke, L ubeck, Germany; 9.28 Pasir Panjang Semi-Expressway, Singapore 9.29 Pioneer Bridge, Singapore
Sommario/riassunto	Health Monitoring of Bridges prepares the bridge engineering community for the exciting new technological developments happening in the industry, offering the benefit of much research carried out in the aerospace and other industrial sectors and discussing the latest methodologies available for the management of bridge stock. Health Monitoring of Bridges: Includes chapters on the hardware used in health monitoring, methodologies, applications of these methodologies (materials, methods, systems and functions), decision support systems, damage detection systems and t