1. Record Nr. UNINA9910830714803321

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Titolo	Biophysical bone behavior [[electronic resource]] : principles and applications / / Jitendra Behari
Pubbl/distr/stampa	Singapore ; ; Hoboken, NJ, : John Wiley, c2009
ISBN	1-282-37155-X 9786612371554 0-470-82402-6 0-470-82401-8
Descrizione fisica	1 online resource (501 p.)
Disciplina	612.7/5 612.75
Soggetti	Bones Biophysics Bones - Pathophysiology
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	BIOPHYSICAL BONE BEHAVIOR: PRINCIPLES AND APPLICATIONS; Contents; Preface; Acknowledgements; About the Book; 1 Elements of Bone Biophysics; 1.1 Introduction; 1.2 Structural Aspect of Bone; 1.2.1 Elementary Constituents of Bone; 1.2.2 The Fibers; 1.2.3 Collagen Synthesis; 1.2.4 Bone Matrix (Inorganic Component); 1.3 Classification of Bone Tissues; 1.3.1 Compact Bone; 1.3.2 Fine Cancellous Bone; 1.3.3 Coarse Cancellous Bone; 1.4 Lamellation; 1.4.1 The Cement; 1.5 Role of Bone Water; 1.6 Bone Metabolism; 1.6.1 Ca and P Metabolism; 1.7 Osteoporosis; 1.8 Bone Cells; 1.8.1 Osteoblasts 1.8.2 Osteoblast Differentiation1.8.3 Osteoclast; 1.8.4 Osteoclast Differentiation; 1.8.5 The Osteocytes; 1.8.6 Mathematical Formulation; 1.9 Bone Remodeling; 1.10 Biochemical Markers of Bone and Collagen; 1.11 Summary; 2 Piezoelectricity in Bone; 2.1 Introduction; 2.2 Piezoelectric Effect; 2.2.1 Properties Relating to Piezoelectricity; 2.3 Physical Concept of Piezoelectricity; 2.3.1 Piezoelectric Theory; 2.4 Sound Propagated in a Piezoelectric Medium; 2.5 Equivalent Single-Crystal Structure of Bone; 2.6 Piezoelectric Properties of Dry Compact

Bones

2.6.1 Piezoelectric Properties of Dry and Wet Collagens2.6.2 Measurement of Piezoelectricity in Bone; 2.7 Bone Structure and Piezoelectric Properties; 2.8 Piezoelectric Transducers; 2.8.1 Transducer Vibration; 2.8.2 Transverse-Effect Transducer; 2.9 Ferroelectricity in Bone; 2.9.1 Experimental Details; 2.10 Two-Phase Mineral-Filled Plastic Composites; 2.10.1 Material Properties; 2.10.2 Bone Mechanical Properties; 2.11 Mechanical Properties of Cancellous Bone: Microscopic View; 2.12 Ultrasound and Bone Behavior; 2.12.1 Biochemical Coupling; 2.13 Traveling Wave Characteristics

2.14 Viscoelasticity in Bone2.15 Discussion; 3 Bioelectric Phenomena in Bone; 3.1 Macroscopic Stress-Generated Potentials of Moist Bone; 3.2 Mechanism of Biopotential Generation; 3.3 Stress-Generated Potentials (SGPs) in Bone; 3.4 Streaming Potentials and Currents of Normal Cortical Bone: Macroscopic Approach; 3.4.1 Streaming Potential and Current Dependence on Bone Structure and Composition: Macroscopic View; 3.5 Microscopic Potentials and Models of SP Generation in Bone; 3.6 Stress-Generated Fields of Trabecular Bone; 3.7 Biopotential and Electrostimulation in Bone

3.7.1 Electrode Implantation3.7.2 Control Data; 3.7.3 Pulsating Fields; 3.7.4 DC Stimulation; 3.7.5 Electromagnetic Field (50 Hz) Stimulation Along with Radio Frequency Field Coupling; 3.7.6 Continuous Fields; 3.7.7 Impedance Measurements; 3.8 Origin of Various Bioelectric Potentials in Bone; 4 Solid State Bone Behavior; 4.1 Introduction; 4.2 Electrical Conduction in Bone; 4.2.1 Bone as a Semiconductor; 4.2.2 Bone Dielectric Properties; 4.3 Microwave Conductivity in Bone; 4.4 Electret Phenomena; 4.4.1 Thermo Electret; 4.4.2 Electro Electret; 4.4.3 Magneto Electret; 4.5 Hall Effect in Bone

4.5.1 Hall Effect, Hall Mobility and Drift Mobility

Sommario/riassunto

Biophysical Bone Behaviour: Principles and Applications is the culmination of efforts to relate the biophysical phenomena in bone to bone growth and electrical behavior. Behari develops a bridge between physics and biology of bone leading to its clinical applications, primarily electro stimulations in fracture healing and osteoporosis. The book is based upon authors own research work and his review articles in the area, and updated with the latest research results. The first book dedicated to biophysical bone behaviorDevelops the relationship between the biophysics and biolo

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Record Nr.	UNINA9910586636703321
Autore	Dienelt Anne
Titolo	Armed Conflicts and the Environment : Complementing the Laws of Armed Conflict with Human Rights Law and International Environmental Law / / by Anne Dienelt
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	9783030993399 9783030993382
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (xv, 349 pages)
Disciplina	172.42 341.6
Soggetti	Humanitarian law Human rights Environmental law, International International Humanitarian Law, Law of Armed Conflict Human Rights International Environmental Law
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- The Environment and The Laws of Armed Conflict -- The Environment and Human Rights -- The Environment and International Environmental Law -- Complementing the Laws Of Armed Conflict with Human Rights Law and International Environmental Law -- General Conclusion.
Sommario/riassunto	The book rethinks the means of harmonization of prima facie norm conflicts in light of the multitude of international agreements across regimes. The methodology deployed in this book, which is referred to as complementation or complementary application, represents a novel approach by focusing on commonly shared objectives and a unifying ordre public transnational across fields of public international law that allow for a harmonization beyond traditional treaty interpretation. Fields of public international law, mainly the laws of armed conflict, international environmental law, and human rights law, apply

simultaneously to questions regarding the environment and war. Such a coexistence challenges the unity of the international legal order, and it also challenges the means of harmonization across fields of public international law. However, eventually, the co-existence of several fields of public international law can result in a refinement of international law and enhanced legal protection. Diversification can also contribute to clarification or normative intensification in areas of parallel application of various fields and multilayered legal protection, demonstrating a counter-option to fragmentation.