1. Record Nr. UNINA9910881093003321

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Titolo	Theory of Electric and Magnetic Orientation in Sharks and Rays Revisited : Physical Principles, Biological Evidence, and Rebuttal of Misconceptions / / by Adrianus J. Kalmijn
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	9783031584459 9783031584442
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (211 pages)
Disciplina	597.3
Soggetti	Freshwater ecology Marine ecology Sensorimotor cortex Biophysics Senses and sensation Ecology Oceanography Freshwater and Marine Ecology Sensorimotor Processing Sensory Systems Biooceanography
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Chapter 1. Introduction -- Chapter 2. Passive and Active Modes of Electro-orientation -- Chapter 3. Sharks Exploring Ambient Electric and Earth’s Magnetic Fields -- Chapter 4. Sensible and Reprehensible Misunderstandings.
Sommario/riassunto	The book describes the theory of electromagnetic orientation in sharks and rays. The theory evolved from studying the publications of Faraday, von Arx, and Longuett-Higgins. Sharks and rays can detect the earth’s magnetic field as well as the ambient electric fields, utilizing their electrosensory system, the Ampullae of Lorenzini. Dr. Kalmijn provides the physical description of this sensory system in the context of his

previously published behavioral studies performed in the laboratory and in natural, open-ocean settings. The book lays bare the physics bedrock of the motional electric fields. The physics of the entire sensory environment interacting with these very sensitive organs is made clear step by step so the reader can understand the source of the fields and how the animals detect them. Dr. Kalmijn analyzes the sensory organs from the perspective of the animal moving through these electric and magnetic fields to arrive at the appropriate relativistic frame to understand how the sensory system works. Relying on his thorough understanding of Maxwell, Faraday, and Einstein, he has sought to understand the miraculous abilities of Elasmobranchs. The detailed presentation clears away many of the misunderstandings and mistakes of previous researchers. Nearly all the mistakes pertain to the underlying physics. The existing literature is discussed, put in context, and corrected. This summary and final presentation of Dr. Kalmijn's life-time study of electromagnetic reception in Elasmobranchs will surely be recognized as the definitive treatise in years to come. It gives researchers and students in biology, physics, oceanography, and fisheries a detailed mathematical physics background for the understanding of electroreception in Elasmobranch fishes.