



Allgemeines Physikalisches Kolloquium

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Dr. Pascal Malkemper
Universität Duisburg-Essen



The Magnetic Sense of Animals

Magnetoreception, the ability to sense the Earth's magnetic field, is widespread within the animal kingdom. Even though the sense is behaviourally proven to exist in birds, amphibians and mammals, the transduction mechanism remains a mystery. Two basic mechanisms have been proposed: A magnetic particle based mechanism (MPM) and a chemical mechanism based on radical pairs (RPM). In birds, both mechanisms seem to exist, perhaps complementing each other, while mammals seem to have either one or the other type. This has been concluded from a variety of straight forward behavioural experiments specifically addressed to narrow down the mode of magnetoreception. On the other side, histological evidence is ambiguous and often key findings are challenged several years later. Therefore, unravelling the magnetic sense is still a highly motivating field of research. In this talk, I will give an overview of the methods and findings regarding the mechanisms of magnetoreception in animals. I will discuss current problems, show up to date techniques and upcoming research directions.

