# Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart
Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme

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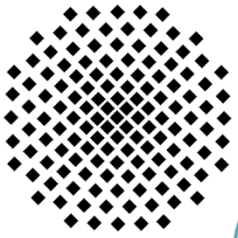

| Dienstag, 22. Dezember 2015 | 17:15 Uhr | Hörsaal V 57.01 |
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# A molecular compass for bird navigation – the Quantum Robin?

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## Abstract

Most physical scientists would probably treat with scepticism the suggestion that a chemical reaction could respond to a magnetic field as weak as the Earth's. After all, the energy of interaction of a molecule with a ~50 μT magnetic field is more than a million times smaller than $k_BT$ at room temperature. Nevertheless, the kinetics of certain chemical reactions *are* magnetically sensitive. The key molecular species are pairs of transient free radicals whose electron-nuclear spin systems evolve coherently under the influence of internal and external magnetic interactions.

In this seminar, I will discuss the proposal that the coherent quantum spin-dynamics of photo-induced radical pairsin cryptochromes (photo-active proteins) could be the mechanism of the light-dependent magnetic compass sense of migratory birds.