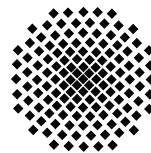


Stuttgarter Physikalisches Kolloquium

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

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Dienstag, 22. Januar 2013

17.15 Uhr

Hörsaal 2 D5

Stuttgarter Max-Planck-Institute, Heisenbergstraße 1, 70569 Stuttgart-Büsnau

Gastgeber: Prof. Gisela Schütz, Max-Planck-Institut für Intelligente Systeme, Telefon: 0711 - 689-1950

From gas storage for medicine to quantum spin liquids - how hybrid solids make their mark

Prof. Russell Morris
University of St. Andrews

Abstract

Inorganic-organic hybrids are some of the most exciting materials to have emerged over the last decade or so. In this presentation I will describe how some of approaches to the synthesis of these materials have developed, and how the solids we are preparing have had cross disciplinary impact. In particular I will describe how highly porous metal-organic frameworks can be used to safely and economically store toxic gases with the aim of using them as therapeutic agents in medicine. This takes a perceived weakness of these hybrids (their poor hydrothermal stability) and turns it into a strength. I will also discuss how the development of new synthesis techniques, designed for hybrids, can be used to prepare materials with new structures and physical properties. I will exemplify this work with examples of new quantum spin liquids with novel compositions and discuss how the structure of the materials affects the physics in these frustrated magnetic systems.