

Highly Frustrated Magnetism (HFM)

Letter of Intent

HFM is a new European Science Foundation (ESF) Scientific Programme dedicated to the subject of frustrated magnetism. It is designed to bring together research groups across Europe for the purpose of sharing expertise, developing new research and training young researchers. Participation in the programme is open to all interested chemists, physicists and other scientists. *Whether you are an established professor or a starting Ph.D. student, a leader in the field or simply curious to learn about frustrated magnetism, you are equally welcome to participate in HFM.*

The programme will fund researchers to visit each others' laboratories or central facilities: either for short visits of up to fifteen days (e.g. for discussions or experiments) or longer visits of up to six months. It will organise (and support the organisation of) workshops and conferences. Participants will be partially or fully funded to attend these events. A "call" will be issued soon with full details on how to become involved.

HFM is financed by 11 member organisations of the ESF, drawn from 10 countries. It is expected to run for five years from 2005. If your country is not involved in the programme, this is not necessarily a bar to your participation. However, non-participating countries are strongly encouraged to join the programme.

More information can be found on the website: www.peter-lemmens.de/esf-hfm.html

Scientific Description of the Programme

HFM is a joint effort between solid-state chemists, experimental and theoretical physicists to unveil novel quantum states and effects where frustration plays a leading role. The project will involve synthesis of new materials, experimental study of physical properties and theoretical investigation of model systems. The main goal is to reach a broad understanding of the important physical parameters that drive the new ground states and sketch out the generic phase diagrams for a broad variety of degrees of freedom. These degrees of freedom extend beyond the simple frustration of magnetic interactions to include lattice couplings, orbital degrees of freedom, dilution effects, electronic doping, and so on. The HFM project represents a timely effort to take a broad general view in a field which can be approached through various systems - for example highly frustrated antiferromagnetic lattices, orbital liquids and metallic spinels - where original properties such as spin liquid, spin ice and orbital order have recently been discovered. The study of doping in these systems also provides new tools with which to examine the problem of High T_c cuprates through a combination of the methods that describe a propagating hole in the resonating valence bond states: methods that will certainly provide new concepts in the field of condensed matter.

Steering Committee

France: P. Mendels (Chair) and C. Lacroix,	Germany: P. Lemmens
UK: S. T. Bramwell	Spain: B. Martinez
Belgium: S. Hoste	Switzerland: F. Mila
Sweden: M. Johnsson	Slovakia: M. Orendác
Israel: A. Keren	Estonia: R. Stern
<i>Guest Members (from non-participating countries)</i> Italy: P. Carretta. Poland: A. Oles	

For planning purposes we would like to assess your likely level of participation in HFM.

- **Please reply to your local representative (listed above) by 1st of August 2005. Please specify:**
 - (1) Your institution.**
 - (2) Who will be the co-ordinator for your institution (to receive future correspondence).**
 - (3) The systems, topics and techniques involved in your relevant research.**
 - (4) The number of researchers from your laboratory who are likely to participate in HFM: names, e-mails, position and subject of interest.**