The cooperative molecular field effect - Surprising magnetic and electronic properties at interfaces

By

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Abstract

New electronic and magnetic properties are induced by the adsorption of closed packed monolayers on solid substrates.\[\text{[i]}\] In layers made from chiral molecules, unexpectedly large electronic dichroism is observed, which manifests itself as spin specific electron transmission.\[\text{[ii]}\] For many thiolated molecules self-assembled on gold, a surprisingly large paramagnetism is observed.\[\text{[iii]}\] This type of magnetism is observed also for inorganic-inorganic interfaces like silicon-silicon oxide.\[\text{[iv]}\]

All the observations can be rationalized by charge transfer occurring at the interfaces.\[\text{[v]}\] In the case of organic molecules, the charge transfer is induced by the organization as self-assembled monolayer.

Utilization of this cooperative molecular field effect will also be described.


Date: Tuesday, 3rd July 2007
Time: 3.00pm – 4.30pm
Venue: PAP Meeting Room (B3n-19)

Hosted by Dr. Wang Lan