

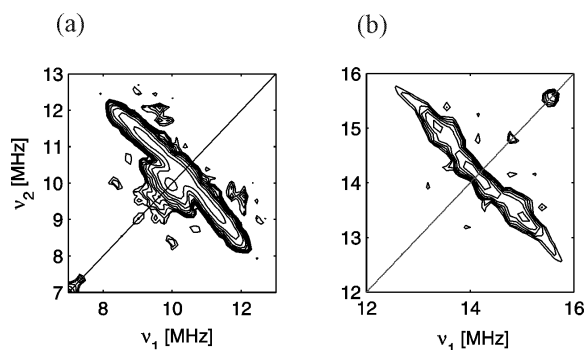
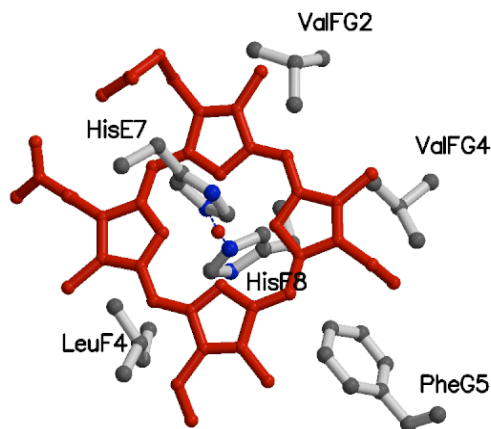
The echo of life - pulsed EPR analyses of paramagnetic metalproteins and related macrocyclic metalcomplexes

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Metal porphyrins and related complexes are often called the “colours of life”, because of the crucial role they play as co-factors of different proteins. Nature uses these porphyrin systems in versatile chemical reactions (redox reactions, ligand binding, biological catalysis,...). These extraordinary characteristics of metal porphyrins and related macrocyclic complexes have triggered synthetic chemists to design porphyrin-derivatives to perform or aid targetted reactions.

In this talk, it will be shown how different EPR techniques at various microwave frequencies can be exploited to derive crucial structural and electronic information on metal porphyrin(-like) complexes. The lecture will start with the analysis of simple synthetic complexes, such as Co(II) corrinates and Fe(III) porphyrins, and evolve to the study of the structure-function relationship in metal proteins, such as the recently discovered mammalian neuroglobin and cytoglobin and the non-symbiotic tomato hemoglobin. The strength of HYSCORE spectroscopy in the analysis of these systems will be highlighted.



Ferric neuroglobin: structure and proton HYSCORE spectra