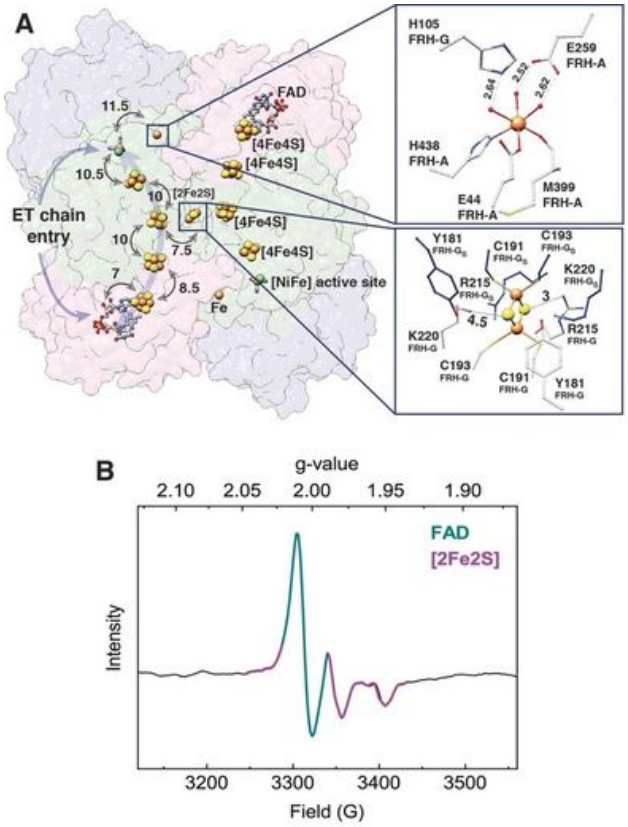
Where hydrogen goes

Start Time: Tuesday, October 29, 2019

End Time:



The UniSysCat groups of Holger Dobbek and Ingo Zebger present in cooperation with Marius Horch from the University of York and Seigo Shima from the MPI in Marburg crystallographic and vibrational-spectroscopic insights into the unexplored structure of the H_2-binding [NiFe] intermediate.

Using an F420-reducing [NiFe]-hydrogenase from Methanosarcina barkeri as a model enzyme, they show that the protein backbone provides a strained chelating scaffold which tunes the [NiFe] active site for efficient H_2 binding and conversion.

The protein matrix also directs H_2 diffusion to the [NiFe] site via two gas channels and allows the distribution of electrons between functional protomers through a subunit-bridging FeS cluster.

Their findings emphasize the relevance of an atypical Ni coordination, thereby providing a

blueprint for the design of bio-inspired H_2-conversion catalysts.

To find out more click here (Wiley Online Library).