

What is Rydberg Matter and Ultra-Dense Hydrogen?

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The Rydberg matter state of atoms (RM) was predicted by Manykin et. al. around 1980 and experimentally confirmed a few years later by Leif Holmlid's work. LH published a review article about RM in 2012 [1]. Here we review current state of research in Rydberg matter of Hydrogen that is showing strong signature of nuclear processes and is possibly the main mechanism behind most LENR phenomena. In the talk, various experimental and theoretical behavior of Rydberg matter of hydrogen and Ultra-dense state is discussed. An extensive collaboration effort of surface physics, catalysis, atomic physics, solid state physics, nuclear physics and quantum information is need to tackle the surprising experimental results that have so far been obtained.

Rydberg matter of Hydrogen is the only known state of matter that seems to be able to bring huge collection of protons to so short distances and for very long time that tunneling becomes a reasonable process for making low energy nuclear reactions. Nuclear quantum entanglement can also become realistic process at these conditions.

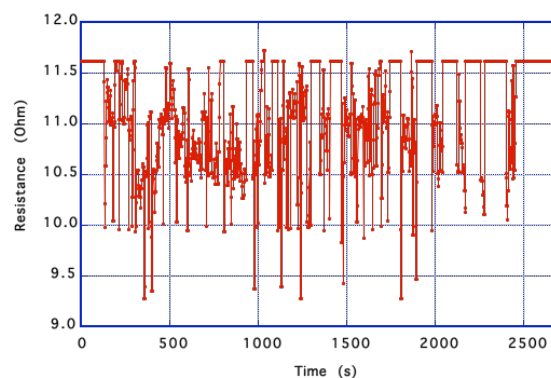
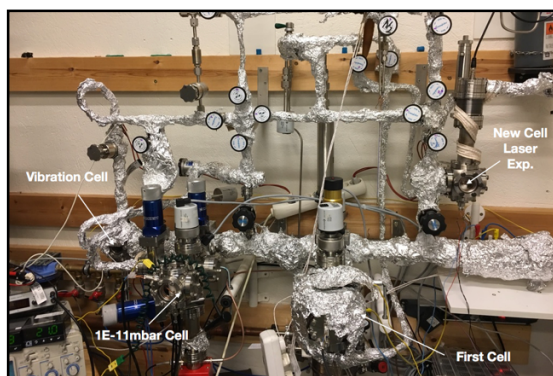


Figure. Experimental setup in Iceland and conductivity signal of Rydberg matter of Deuterium

- [1] Experimental Studies and Observations of Clusters of Rydberg Matter and Its Extreme Forms
Leif Holmlid. J. Clust Sci (2012) 23:5–34 Holmlid, L. & Fuelling, S. J Clust Sci (2015)