

# Characterization, Optimisation and Perspectives of Light Weight Metal Hydride Materials and Systems based thereon for Hydrogen Storage

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Light weight metal or complex hydrides offer the potential for a compact, safe and energy efficient hydrogen storage alternative for stationary as well as mobile applications.

In this presentation, results attained by different characterisation techniques as in-situ XRD, small angle X-ray scattering, EXAFS and XANES, volumetric Sieverts' type measurements, in-situ neutron radiography etc. on different hydrides and hydride composites in lab-scale and tank-scale are presented. Insides about reaction mechanism, sorption behaviour, cycling stability of light weight hydrides and Reactive Hydride Composites, the influence and optimisation of compaction on such materials to pellets and the behaviour of such pellets under in-situ conditions are given.

The possibility to produce such materials in reasonable amounts and qualities for application in hydrogen storage tanks is discussed as well as the advantages and limitations or disadvantages of their usage for hydrogen storage.

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Education:

Dr. rer. nat. (PhD) in experimental Material Physics, Universität Göttingen, Germany, 2002.

Dipl.-Phys. (~Master of Science): diploma thesis in computational solid state physics at Universität Göttingen, Göttingen, Germany, 1998.

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Scientific and Strategic Deputy of the Director of the Materials Technology division at HZG since 2014.

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