

# HYDROGEN IN METAL NANOPARTICLES AND THIN FILMS

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## Abstract text

The interaction of hydrogen with solids and the mechanisms of hydride formation undergo significant changes in nanomaterials due to a number of structural features. This talk aims at illustrating the principles that have recently inspired the development of new nanomaterials for hydrogen storage. After a general discussion about the influence of nanomaterials microstructure on their hydrogen sorption properties, several scientific cases and hot topics will be presented surveying various classes of materials. These include nano-objects with composite architectures such as core-shell or composite nanoparticles, nanoparticles on porous or graphene-like supports, thin films and multilayers. Finally, an outlook will be given on future research directions.

## References

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Picture of Author



## Short Biography of Author

Luca Pasquini received the Ph.D. in Condensed Matter Physics at the University of Bologna. He worked as post-doc at the University of Stuttgart, the ESRF synchrotron and the University of Bologna, where he is currently Associate Professor of experimental materials physics. He has over 20 years of experience in the growth of nanoparticles and nanostructures by physical methods and in the investigation of structure-property relationships. He is author of about 110 papers in international peer-reviewed journals (ORCID: <https://orcid.org/0000-0001-8939-2204>). His current research interests include metal hydrides for solid-state hydrogen storage and semiconducting oxide nanostructures for photoelectrochemical hydrogen production.