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KEY TO ABSTRACT IDENTIFICATION

PL	Plenary Lectures
KL	Keynote Lectures
OP	Oral Presentations
PP-AC	Poster presentations- Analytical Chemistry
PP-BB	Poster presentations- Biochemistry and Biotechnology
PP-CAM	Poster presentations- Chemistry of Advanced Materials
PP-CE	Poster presentations- Chemical Engineering
PP-CNP	Poster presentations- Chemistry of Natural Products
PP-EDC	Poster presentations- Education in Chemistry
PP-ENC	Poster presentations- Environmental Chemistry
PP-FC	Poster presentations- Food Chemistry
PP-IC	Poster presentations- Inorganic Chemistry
PP-MC	Poster presentations- Medicinal Chemistry
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PP-PTC	Poster presentations- Physical and Theoretical Chemistry
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PP-TRC	Poster presentations- Topics Related to Chemistry

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Hydrogen Storage in Metal Hydrides: Experimental Approach

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Abstract: The paper deals with the destabilization methods for improving the storage properties of metal hydrides. The experimental approach was used to point out the influence of various types of defects on the structure and stability of hydrides. As a case study, Mg-based hydrides have been investigated. As shown by our research, ion irradiation is the way to introduce a well-defined concentration of defects (Frankel pairs) at the surface and sub-surface layers of a material. Defects at the surface play the main role in sorption reactions since they enhance the dissociation of hydrogen. Further, our research shows that ball-milling introduces defects through the entire sample volume, refines the structure and thus decreases the path for hydrogen diffusion. Surface-modified material demonstrates better thermodynamic and kinetics properties than bulk modified hydride materials.

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