

Materials for Hydrogen Storage – Future Perspectives?

14-18 June 2012
the Norwegian Coastal Express
Kirkenes – Trondheim

CONFERENCE PROGRAM



Thursday June 14, 2012

12:00 – 13:30	ARRIVAL + LUNCH BREAK
13:30 – 13:45	WELCOME AND INFORMATION (Hauback/Frommen)
13:45 – 14:15	Session chair: B.C. Hauback
	<u>Yoshitsugu Kojima</u> and Takayuki Ichikawa “Nitrogen-Containing Nanocomposite Materials for Hydrogen Storage”
14:15 – 14:45	<u>Tejs Vegge</u> , Jon Bergmann Maronsson, Peter Bjerre Jensen and Steen Lysgaard “Novel computational techniques for efficient design of nanoparticles and complex materials for energy storage”
14:45 – 15:15	<u>Martin Dornheim</u> , Julian Jepsen, Claudio Pistidda, Fahim Karimi, Oliver Metz, Nina Busch, Christian Horstmann, Jose Bellosta von Colbe, Klaus Taube, Thomas Klassen “Hydrogen Storage: Materials and Systems”
15:15 – 16:00	COFFEE BREAK (PAUSEMENY)
16:00 – 17:00	Vardø (16:00 – 17:00)
17:10 – 17:20	Session chair: Marcello Baricco
	<u>Allison M. Fisher</u> and Alvin Mick “Mixed Metal Amidoboranes for Solid Hydrogen Storage”
17:20 – 17:30	<u>Satoshi Hino</u> , Takayuki Ichikawa, Yoshitsugu Kojima, Magnus H. Sørby, & Bjørn C. Hauback “Synthesis of new complex hydrides in liquid ammonia”
17:30 – 17:40	<u>Zhao Qian</u> , Biswarup Pathak, Ralph Scheicher and Rajeev Ahuja “Hydrazine borane and its derivative material for hydrogen storage: Understanding from <i>ab initio</i> calculations”
17:40 – 17:50	<u>Nataliya Ye. Skryabina</u> , Vladimir M. Pinyugzhanin, Daniel Fruchart, and Marjan Fouladvind “Role of texture on the hydrogen sorption kinetics on magnesium and magnesium-rich alloys”
17:50 – 18:00	<u>Jiri Muller</u> , Henning Heiberg-Andersen, Arne T. Skjeltop ¹ , Th. Steriotis, and A. Gotzias “Hydrogen Storage in Carbon Cones”

18:00 – 18:25	Discussion (previous short talks)
18:25 – 19:15	PLENARY DISCUSSION «NANO» Discussion leader: M Fichtner
19:30 – 20:30	WELCOME RECEPTION
20:30 – 22:00	DINNER

Friday June 15, 2012

	<i>Session chair: Martin Dornheim</i>	
09:00 – 09:30	<p><u>Son-Jong Hwang</u>, Hoon Kee Kim, Hyun-Sook Lee, Young-Su Lee, Young Whan Cho, Jinsol Park, and Jong-Sung Yu</p> <p>“High Resolution Solid State NMR Studies for Probing Nano-confinement Effects on Metal Borohydrides for Hydrogen Storage Application”</p>	
09:30 – 10:00	<p><u>Shin-ichi Orimo</u></p> <p>“Transition between Bonding States of Hydrogen in Hydrides”</p>	
10:00 – 10:30	<p><u>R. Griessen</u>, C. Boelsma, S. De Man, D. Visser, H. Schreuders, A. Baldi, and B. Dam</p> <p>“Two new applications of hydrogenography: Direct intrinsic hydrogen permeability measurements and enthalpy-entropy correlation”</p>	
10:30 – 11:00	<p>Eugenio Pinatel, Mauro Palumbo, and <u>Marcello Baricco</u></p> <p>“CALPHAD for Hydrogen Storage Materials”</p>	
11:15 – 13:30	Hammerfest (11:15 – 12:45)	LUNCH BREAK (12:00 – 13:30)
13:30 – 14:00	<p><u>Yaroslav Filinchuk</u></p> <p>“New directions in synthesis and characterization of complex hydrides”</p>	
14:00 – 14:30	<p><u>Maximilian Fichtner</u>, Hu, Jianjiang;¹Ren, Shuhua;¹Prakash, Raju¹Anji Reddy, Munnangi;²Das, Bijoy Kumar</p> <p>“Perspectives of Hydrogen Storage Materials – Old and New Applications, and Spin-Offs”</p>	

14:30 – 15:00	<u>H. Fjellvåg</u> and P. Vajeeston “Materials for Hydrogen Storage and Applications in the Transportation Sector. Computational Studies of Bulk and Nano phases”
15:00 – 15:30	<u>William I F David</u> , Joshua W Makepeace, Philippe C Aeberhard, and Martin O Jones “Hydrogen storage materials: is lithium the answer?”
15:30 -16:15	COFFEE BREAK (PAUSEMENY)
16:15 – 16:25	<i>Session chair: Yoshitsugu Kojima</i> <u>Terry D. Humphries</u> , Derek Birkmere, Bjørn C. Hauback, and Craig M. Jensen “High pressure NMR studies of complex hydrides”
16:25 – 16:35	Mark P. Pitt, Per Erik Vullum, Magnus, H Sørby, <u>John C. Walmsley</u> , Randi Holmestad and Bjorn C. Hauback “Nanostructural studies of transition metal additives in NaAlH ₄ ”
16:35 – 16:45	<u>Alexander Skripov</u> , Alexei Soloninin, Olga Babanova, Dorthe Ravnsbæk, Torben Jensen, Yaroslav Filinchuk, Y. Yan and Arndt Remhof “Nuclear magnetic resonance studies of hydrogen dynamics in less-stable borohydrides: Cd(BH ₄) ₂ and Y(BH ₄) ₃ ”
16:45 – 16:55	<u>Magnus H Sørby</u> , Satoshi Hino, Hilde Grove, Jørn Eirik Olsen, Bjørn C Hauback “Halide substitution in borohydrides”
16:55 – 17:05	<u>Marit D Riktor</u> , M.H. Sørby, E.G. Bardaji, M. Fichtner and B. C. Hauback “Reversibility in Ca(BH ₄) ₂ ”
17:05 – 17:15	<u>Zbigniew Łodziana</u> and Arndt Remhof “Dynamics and diffusion in lightweight borohydrides”
17:15 – 17:25	<u>Christoph Frommen</u> , Magnus H. Sørby and Bjørn C. Hauback “Go Rare! –if you dare!”
17:25 – 17:35	<u>Jørn Eirik Olsen</u> , Christoph Frommen, Magnus H. Sørby, Bjørn C. Hauback “Structure and decomposition study of Yb-containing borohydrides”
17:35 – 17:45	<u>Ivan Saldan</u> , Isabel Jansa Llamas, Georgios Kalantzopoulos, Satoshi Hino, Christoph Frommen, and Bjørn Christian Hauback “Influence of transition metal oxides on Mg(BH ₄) ₂ decomposition”
17:45 – 18:15	Discussion (previous short talks)

18:15 – 18:30	SHORT BREAK (Stretch Legs)
18:30 – 19:30	PLENARY DISCUSSION «New systems/compounds» Discussion leader: T Jensen & M Hirscher
20:30 – 22:00	DINNER

Saturday June 16, 2012

	<i>Session chair: William I F David</i>	
08:45 – 09:15	<u>Daniel Fruchart</u> , Olivier Fruchart, Gregory Girard, Salvatore Miraglia, Luc Ortega, Patricia de Rango, Marina Shelyapina, Nataliya Skryabina “Relationship between micro-/nano-structure and stress development with the kinetic of hydrogenation/dehydrogenation of TM-doped Mg”	
09:15 – 09:45	<u>Yumiko Nakamura</u> , Hyunjeong Kim, Kohta Asano, Kouji Sakaki “Local structures of hydrogen storage alloys”	
09:45 – 10:30	Risøyrenna	COFFEE BREAK
10:30 – 11:00	Lennard P. A. Mooij, Christiaan Boelsma, Martin Slaman, and <u>Bernard Dam</u> “Nucleation and growth of nanoconfined metal hydride thin films”	
11:00 – 11:30	<u>J. Huot</u> , J. Lang, J. Bellemare, S. Amira, M. Tousignant “Use of cold rolling for the synthesis and preparation of metal hydrides”	
11:30 – 12:00	<u>Torben R. Jensen</u> “New borohydrides and nanoconfinement for energy storage”	
12:00 – 13:00	LUNCH BREAK (12:00 – 13:00)	
	<i>Session chair: Ragaiy Zidan</i>	
13:00 – 13:10	<u>Yasusei Yamada</u> , Mayu Miura, Kazuki Tajima, Masahisa Okada, Kazuki Yoshimura “Degradation of Switching Property of Switchable Mirrors Based on Magnesium Alloy Thin Films”	
13:10 – 13:20	<u>S. Deledda</u> , M. Guzik, and B.C. Hauback “Mg-based mixed transition-metal complex hydride obtained by reactive milling”	

13:20 – 13:30	<u>Kazuki Yoshimura</u> , Kazuki Tajima, Yasusei Yamada “Stress in Switchable Mirror Thin Film According to Hydrogenation and Dehydrogenation”	
13:30 – 13:40	<u>Hyunjeong Kim</u> , Kouji Sakaki, Jin Nakamura, Hiroshi Ogawa, Yumiko Nakamura, Etsuo Akiba, Akihiko Machida, Tetsu Watanuki, & Thomas Proffen “Origin of the excellent/poor cyclic properties of V-based bcc alloys”	
13:40 – 14:15	Discussion (previous short talks)	
14:15 – 16:00	Storkmarknes (14:15 – 15:15)	COFFEE BREAK (PAUSEMENY) 15:15 – 16:00
16:00 – 17:00	PLENARY DISCUSSION «Catalysts/Reversibility» Discussion leader: C. Jensen	
17:15 – 20:30	Trollfjord	Svolvær (18:30 – 20:00)
20:30 – 22:00	DINNER	






Sunday June 17, 2012

	<i>Session chair: Shin-ichi Orimo</i>	
08:45 – 09:15	<u>Ragaiy Zidan</u> “Novel Materials and Methods for Hydrogen Storage”	
09:15 – 09:45	<u>Michael Hirscher</u> , Barbara Streppel, Ivana Krkljus & Maurice Schlichtenmayer “Nanosponges for hydrogen storage”	
09:45 – 10:15	<u>Björgvin Hjörvarsson</u> “Hydrogen diffusion”	
10:15 – 10:40	COFFEE BREAK	
10:40 – 10:50	<u>Sveinn Olafsson</u> “Growth of Mg:C nano structures using HiPIMS sputtering”	

10:50 – 11:00	<p><u>Sabrina Sartori</u>, Kenneth D. Knudsen, Fredrik Sydow Hage¹, Richard H. Heyn, Elisa Gil Bardaji, Zhirong Zhao-Karger, Maximilian Fichtner, Bjørn C. Hauback</p> <p>“Desorption and morphology of nano-confined $\text{Li}^{11}\text{BD}_4\text{-Mg}(\text{}^{11}\text{BD}_4)_2$”</p>	
11:00 – 11:10	<p><u>Alexander V. Soldatov</u>, Maximilian Fichtner, Alexander Guda, Ilya Pankin, and Vladimir P. Dmitriev</p> <p>“Dynamics of the nanoscale atomic and electronic structure of the hydrogen storage materials under “operando” conditions”</p>	
11:10 – 11:20	<p><u>Arndt Remhof</u>, Andreas Züttel, Jan Peter Embs, Zbigniew Lodziana, Peter Ngene, Petra de Jongh</p> <p>“Hydrogen Dynamics in Nanoconfined Lithiumborohydride”</p>	
11:20 – 11:30	<p><u>Hai-Wen Li</u>, Tomoya Matsunaga, Yigang Yan, Hideki Maekawa, Etsuo Akiba, Shin-ichi Orimo</p> <p>“Hydrogenation properties of nanostructured MgB_2”</p>	
11:30 – 12:00	Discussion (previous short talks)	
12:00 – 14:00	Sandnesjøn (12:30 – 13:30)	LUNCH BREAK (12:00 – 13:30)
	Seven Sisters	
14:00 – 14:30	<i>Session chair: Jacques Huot</i>	
	<p><u>Petra E. de Jongh</u></p> <p>“Confinement of LiBH_4 in nanoporous silica and carbon materials – Impact on the physical chemical properties”</p>	
14:30 – 15:00	<p><u>Craig M. Jensen</u>, Xiangfeng Liu, G. Sean McGrady, Henrietta Langmi, Marina Chong, Godwin Severa, Ewa Rönnebro, Tom Autrey, Abhi Karkamkar, and Daniel Brayton</p> <p>“Development of Processes for the Reversible Dehydrogenation of High Capacity Hydrogen Carriers at Practical Conditions”</p>	
15:00 – 15:30	<p><u>G. E. Froudakis</u></p> <p>“Designing Nanoporous Materials for Hydrogen Storage”</p>	
15:30 – 16:15	COFFEE BREAK (PAUSEMENY)	
16:15 – 17:00	Brønnøysund (16:15 – 17:00)	
17:00 – 17:30	Torghatten (mountain after Brønnøysund)	

17:30 – 19:30	PLENARY DISCUSSION «Bottlenecks» Discussion leader: R Griessen CLOSING REMARKS: B.C. Hauback
19:30 – 20:30	RECEPTION
20:30 – 22:00	CONFERENCE DINNER

Table legend:

	Break or social event
	Harbor (arrival – departure); chance to leave the ship
	Landmark and “must-see” event visible from deck
	Plenary Discussion
	Discussion (related to short talks)