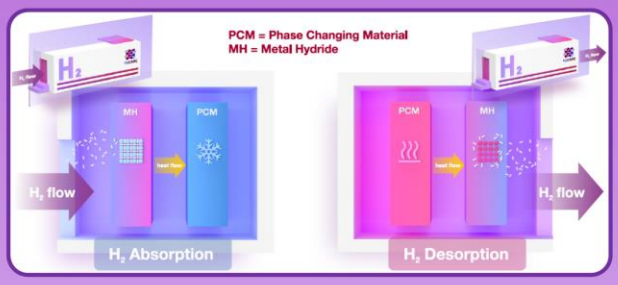
This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking (JU) under grant agreement No 826352. The JU receives support from the European Union's Horizon 2020 research and innovation programme and Hydrogen Europe and Hydrogen Europe Research.

The HyCARE project aims at designing, developing and testing a hydrogen storage tank with use of a solid-state hydrogen carrier in large scale.



The tank is based on an innovative concept that couples hydrogen and heat storage for stationary storage of the excess renewable energy.

The HyCARE concept is based on four key elements:

RENEWABLE ENERGY

wind, solar and hydroelectric energy to be used as alternative sources for carbon-free energy systems

HYDROGEN

an energy carrier produced from other energy sources for long-term storage of renewable energy

METAL HYDRIDE

for absorbing and releasing hydrogen under moderate pressure and temperature

PHASE CHANGING MATERIALS

for managing heat due to hydrogen sorption and desorption in metal hydrides

Erika M. Dematteis, Jussara Barale, Mattia Costamagna, Paola Rizzi, Marcello Baricco, Camel Makhloufi, Nils Bornemann, Bettina Neumann, Carlo Luetto, Holger Stühff, Matteo Testi, Chiara Pellegrini, Luigi Crema, Giovanni Capurso, José M. Bellosta von Colbe, Klaus Taube, Bjorn Hauback, Monica Risso, Sabina Fiorot, Davide Damosso, Fermin Cuevas, Michel Latroche

HyCARE

Hydrogen CArrier for Renewable Energy storage

to demonstrate on a large scale hydrogen capacity to harness power from renewable and support its integration into the energy system

We care about:

- Clean Transport
- Green H_2 Production
- Heat & Electricity Production
- H_2 Storage for Grid Balancing
- Low Critical Raw Materials

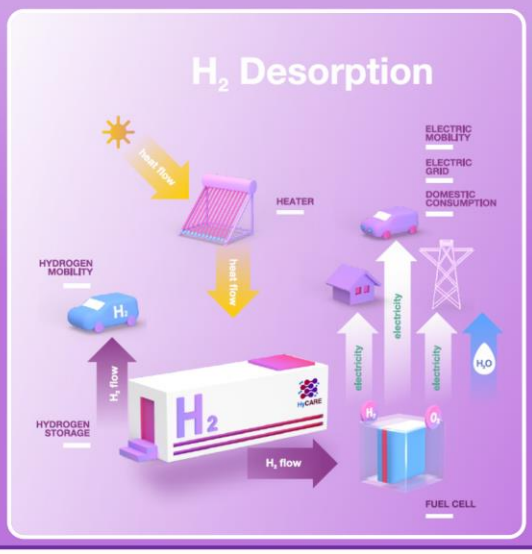
http://hycare-project.eu

Follow Us!

The tank will be installed in the site of ENGIE Lab CRIGEN in 2021

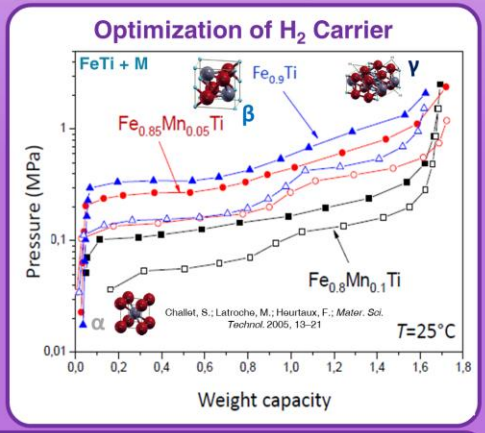
HyCARE will be integrated to renewable energy, a PEM electrolyser and a PEM fuel cell

Quantity	Safety		Efficiency	Environmental Impact	Cost
50 kg H_2	**<30** bar	**<70** °C	**<70** %	**<5.0** kWh/kg H_2	**Lower**
High quantity of stored hydrogen	Low pressure storage	Low temperature storage	Total round trip energy efficiency	External energy source with innovative design for large scale storage, and use of non critical raw material	Activation time, material degradation, need of purification system




FeTi-type alloy


Organic PCM



UNIVERSITA' DEGLI STUDI DI TORINO · TECNO DELTA · ENVIRONMENT PARK · Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research · Stühff GmbH Präzision für Werkstoffe · FONDAZIONE BRUNO KESSLER · IFE · ENGIE · CNRS

Twitter link of the post related to poster:

https://twitter.com/HycareP/status/1303243402419621889

Short intro/caption for the poster:

Discover HyCARE: Hydrogen CArrier for Renewable Energy storage #MaterialsPoster @MaterialsMDPI
We are developing an #hydrogen storage tank using TiFe-type solid-state H2 carrier in large scale.
Renewable+H2=Green Future!
http://bit.ly/HyCAREbrochure
@ErikaDematteis

Cognome DEMATTEIS
Nome ERIKA MICHELA
nato il 05-01-1991
(atto n. 3 P. 1 S. A)
a GIAVENO (TO) ( )
Cittadinanza ITALIANA
Residenza GIAVENO (TO)
Via COAZZE N.213
Stato civile STATO LIBERO
Professione STUDENTE

CONNOTATI E CONTRASSEGNI SALIENTI

Statura 1,67
Capelli CASTANI
Occhi CASTANI
Segni particolari ===

Firma del titolare Dematteis Erika Michela

GIAVENO li 03-10-2013

Impronta del dito indice sinistro

IL SINDACO
D'ORDINE DEL SINDACO
L'Ufficiale d'anagrafe delegato
Guglielmino Paolo

Scadenza 05-01-2024

Totale diritti Euro 5,66

AU 7458180

I.P.Z.S. S.p.A. - O.C.V. - ROMA

REPVBBLICA ITALIANA

COMVNE DI
GIAVENO

CARTA D'IDENTITA'
N° AU 7458180

DI
DEMATTEIS
ERIKA MICHELA

■ PERSONAL INFORMATION	
Family name, First name Researcher unique identifier(s) Address: Telephone: Email: Contact: Sex: Date of birth: Nationality: URL for web site: Social pages:	**Dematteis, Erika Michela** ORCID: 0000-0002-3680-4196 Research ID: F-1350-2016 Corso Laghi 81, 10125 Avigliana (TO), Italy +39 3386197784 (IT / WhatsApp) erika.dematteis@gmail.com Skype: Erika Michela Dematteis (erhy5th) Female 5 January 1991 Italian https://www.linkedin.com/in/erika-michela-dematteis-374167131/ Research Gate LinkedIn Facebook Twitter Instagram

● SHORT CV-BIO

Erika graduated in **Industrial Chemistry** at the University of Turin. At the same university, she got the **PhD title cum laude** on the 19/10/**2018**. During her studies she had 3 **Erasmus Traineeship mobility periods**, of which 2 at the **Aarhus University (Denmark)** and 1 at the **Helmholtz Zentrum Geesthacht (Germany)**. She had a 1-year Post-Doc Fellowship at the ICMPE (UMR7182), CNRS-UPEC in Paris (France), until the 31/01/2020, involved in the HyCARE project and supported by the European Union's Horizon2020 in the frame of the Fuel Cell Hydrogen Joint Undertaken for optimising and selecting a good material for developing a large-scale renewable hydrogen production and storage integrated plant. **Currently,** she's still involved in the project as a PostDoc at the university of Turin. During her PhD and postdoc researches, she enhance her expertise in chemistry, metallurgy and material science, together with a strong industrial-orientated approach and developing valuable and unique soft skills.

● RESEARCH EXPERIENCE AND PRINCIPAL INTEREST

Expertise in:

- ✓ Thermodynamic modelling according to the CALPHAD approach (TERMO-CALC software)
- ✓ Experimental study and interpretation of multi-component phase diagrams data
- ✓ **Inorganic and alloy synthesis** (wet-chemistry, reactive ball milling, arc melting, induction furnace)
- ✓ **Sample preparation** (sampling, cutting, etching, polishing, closing silica tube under vacuum or inert atmosphere for thermal treatment)
- ✓ **Advanced multi-technique characterization** methods such as: optical and electronic microscopy, hardness and strength tests, failure analysis
- ✓ Air-sensitive materials manipulation using glove box and Schlenk lines
- ✓ Advanced crystallography (*in-situ* Synchrotron Radiation Powder X-ray and Neutron Diffraction, Rietveld Method)
- ✓ Sievert's method (PCI, TPD)
- ✓ Calorimetry and thermal analysis (HP-DSC, TGA-DSC-MS, TPPA)
- ✓ Writing of **research proposals** for obtaining beamtime at synchrotron facilities (8 performed experiments)
- ✓ **Teaching** in laboratory courses (169 hour performed)
- ✓ Training/**supervising** students (mentor of 6 students)
- ✓ Strong background in **industrial chemistry, metallurgy, inorganic chemistry and material science**
- ✓ Combining experiments and theoretical approaches
- ✓ Developing, analysing and selecting new promising materials
- ✓ **Industrially-oriented** research for fast development of materials
- ✓ European projects and **network** of leading scientist and companies over Europe, USA and Australia.
- ✓ 3 languages: Italian, English, French

Detailed description of research outputs and contributes are reported in **Annex A**.

- Several **international conferences** attended: presenting 11 Posters and 10 Talks (2 invited)
- 14 **papers** (8 first author, 9 open access) published
- 2 **prizes**: best Master Thesis in Industrial Chemistry, and best presentation at the EMRS Fall meeting 2017
- Member of **scientific societies**, and member of department counsel as student representative
- Involved in many **European projects** (BOR4STORE, ECOSTORE, HyCARE) and Researchers' Nights

● EDUCATION

01/10/2015-19/10/2018	PhD in Material and Chemical Science (XXXI cycle, PhD cum laude) University of Turin, Department of Chemistry and NIS, Torino, Italy Doctoral School of Sciences and Innovative Technologies PhD Supervisor: Prof. Marcello Baricco Thesis: "Thermodynamics of Boron-based Complex Hydrides for Energy Storage" ▪ **National Abilitation in Chemistry**, Session November 2016.
01/10/2013-21/07/2015	Master Degree in Industrial Chemistry (110/110 magna cum laude) University of Turin, Department of Chemistry and NIS, Torino, Italy MSc Supervisor: Prof. Marcello Baricco Thesis: "Thermodynamic investigation of borohydrides eutectic mixtures for hydrogen storage application"
01/10/2010-16/10/2013	Bachelor Degree in Industrial Chemistry (109/110) University of Turin, Department of Chemistry and NIS, Torino, Italy MSc Supervisor: Prof. Livio Battezzati Thesis: "Failure Analysis of metallic components by metallographic and analytical techniques" after 2 months internship at MTC s.r.l., MotivexLab, Avigliana, Italy

● CURRENT POSITION

01/02/2020-31/01/2021	Post-doctoral Research Fellow INSTM, University of Turin, Department of Chemistry and NIS, Torino, Italy Project: "Materials for hydrogen storage , and HyCARE"

● PREVIOUS POSITIONS

01/02/2019-31/01/2020	Post-doctoral Research Fellow ICMPE (UMR7182), CNRS, UPEC, Thiais (Paris), France Project: "HyCARE: Hydrogen CArrier for Renewable Energy storage" *Optimisation and selection of a good material for developing a large-scale renewable hydrogen production and storage integrated plant.*
01/10/2018-31/01/2019	Post-doctoral Research Fellow University of Turin, Department of Chemistry and NIS, Torino, Italy Project: "Complex Hydrides for Energy Storage"
05/01/2007-30/09/2015	Cashier and Assistant Minimarket Daimo Paola, Via San Michele 127, 10094 Giaveno (TO), Italy *Organisation and replenishment of the various shelves and merchandise for sale; cleaning, inventory compilation, realization of shop windows. Help at the cashier, and during storage and replenishment.*
25/03/2013-25/05/2013	Quality Control MTC s.r.l., Via M. Gandhi, 13/d, 10051 Avigliana (TO), Italy - (http://motivexlab.com/) *Cutting and Rectification of metal sheets, use of cropper for the preparation of the tensile test specimens, embedding and polishing of metallographic specimens. Tensile tests. Analysis of microstructures and failure analysis of fracture surfaces (OM, SEM-EDS), determination of chemical composition (quantometer), hardness tests, micro hardness (also sewing and welding analysis), ultrasound, determination of thicknesses, analysis of accelerated aging and corrosion (moist and salt room), analyses of cracks with magnetic particles. Writing of reports for certified analysis, update and writing of manuals.*
29/06/2009-17/07/2009	Technical Analyst Hospital ASL TO 3, Via Seminario, 45, 10094 Giaveno (TO), Italy *Assisting in the preparation of specimens, analysis, labelling tubes. Assist during blood tests and analysis, microscopic observation of specimens for analysis of feces and urine, making protein frameworks, catecholamines and other analyses carried out with electrophoresis.*

● VOLOUNTARY EXPERIENCES

02/01/2012-present	Cashier, Projectonist, Cultural animator Cinema Teatro San Lorenzo, Via Ospedale 8, 10094 Giaveno (TO), Italy

01/06/2003-31/08/2014	*Once a week on Tuesday or one weekend per months, I was responsible of the opening of the cinema and of selling tickets. I also programmed and projected digital films. Periodically I organized cultural events, meeting, festivals. I take care of the cinema's website (http://www.cinemasanlorenzo.it) and social pages.* Coordinator and Animator Parrocchia San Lorenzo and Oratorio Semi di Speranza Via Ospedale 2, 10094 Giaveno (TO), Italy *Education and entertainment of children through training sessions in the field of Catholic religion, school camps, summer group and through games and hands-on workshops. Also organizing trips and fun activities for all the day (during the summer holiday), as well as personal liability of minors entrusted (responsibility assumed from the age of 18).*

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
	PET (B1, with merit), FCE (B2, grade C)				

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
French	B1	B1	A2	A2	A1

Communication skills Good communication skills gained through my experience as sales manager. I have good communication skills considering both writing and speaking. These competencies have been enhanced thanks to the involvement in an international network and collaborations. I had to describe my research activities and discuss the perspectives during both internal project meetings and international conferences.

Organisational / managerial skills I learned how to work considering timing, goals and priorities given by the project coordinators. I have also developed good skills in the management of written reports, proposals and organizational issues related to European projects or proposals to access to synchrotron facilities, and projects for young people in my parish. I know how to coordinate small group of people and I can be a reference for younger students inside my laboratory.

Job-related skills I have expertise in thermodynamic modelling according to the Calphad approach and in the experimental study and interpretation of multi component phase diagrams data. I also have a good know-how in the synthesis of inorganic compounds or alloys (ball milling, arc melting, induction furnace), the preparation (sampling, cutting, etching, polishing, closing silica tube under vacuum or inert atmosphere for thermal treatment) and analysis (optical microscopy, hardness and strength tests, failure analysis) of metallographic samples. Moreover, I have expertise in calorimetric and diffraction techniques. I know how to work and manipulate air-sensitive materials using glove box and Schlenk lines.

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient	Proficient	Independent	Proficient	Independent
ECDL full				

I have a broad and basic informatics experience both at the hardware and at the software level. I can work with Windows system and I am used to work with the main Microsoft Office™ tools (word processor, spread sheet, presentation software) and with other scientific software able to manage

worksheets (ORIGIN), database of bibliography (Mendeley), X-ray diffraction editing and refinement programs (MAUD, FullProf, FIT2D), crystallographic databases, computational thermodynamic program (TERMO-CALC). I have basic command of picture and photo editing software gained as an amateur photographer (Adobe Illustrator).

Other skills

- I am a sportive person. I like climbing, biking, skiing, snowboarding, skating, trekking, swimming and playing basketball or volleyball. I also enjoy doing enduro/off-road or road trips with my motorbike.
- I like arts and culture, in particular activities such as photography, theatre, cinema, Japanese comics and music (I played the electric bass guitar in a female band).
- I take part to politic discussion groups. I was a student representative in the department of Chemistry and I followed as a coordinator and animator different projects in my hometown parish. All these experiences have helped me to gain very good organizational and managing skills, and made me a creative, flexible and responsible person with an ability to work in team or independently. I know how to find the necessary information or learn new skills fast. I love to work in an open and international network.

Driving licence Italian driving licence category A and B.

ADDITIONAL INFORMATION

Annex A integrates in details the CV of the candidate showing all the research relevant activities performed. From an applicative and industrial point of view it demonstrate how the candidate is active, her attitude to learn fast and pursue her goals and objectives to then publish and communicate the results of her work and research. The candidate's best value is the ability of being easily integrated in any material/mechanical related fields because of her deep knowledge on systems and materials.

ANNEX A

● FELLOWSHIPS AND AWARDS

23/09/2020	Selected among the 10 Finalists of the IX° National Prize of popularization of science "GiovedìScienza", Italy
01/02/2020-31/01/2021	INSTM Post-doctoral Research Fellowship to fund research at the Department of Chemistry, University of Turin, Italy. Project: "Materials for hydrogen storage". Funding: 14 K€/yr (fellow salary).
01/10/2018-31/01/2019 & 01/10/2015-01/10/2018	Italian Ministerial PostDoc & PhD Fellowship to fund research at the Department of Chemistry, University of Turin, Italy. Project: "Thermodynamics of Boron-based Complex Hydrides for Energy Storage". Funding: 17 K€/yr (net fellow salary).
01/03/2017-02/05/2017	Erasmus Traineeship Fellowship for mobility period at Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research, Geesthacht, Germany Project: "Experimental investigation of complex mixtures of borohydrides for hydrogen storage". Funding: 400 €/mo (mobility support)
25/05/2016-30/08/2016	Erasmus Traineeship Fellowship for mobility period at Aarhus University, Aarhus, Denmark Project: "Synthesis and characterization of complex hydrides for energy storage (hydrogen storage and batteries)". Funding: 450 €/mo (mobility support)
02/03/2015-19/06/2015	Erasmus Traineeship Fellowship for mobility period at Aarhus University, Aarhus, Denmark Project: "Experimental investigation of the thermodynamic properties of eutectic borohydrides for hydrogen storage". Funding: 450 €/mo (mobility support)
20/09/2017	Award "Best student oral presentation of symposium C", EMRS, Fall Meeting 2017, Warsaw University of Technology, Poland
16/05/2017	Award "Best Master Thesis in Industrial Chemistry, Academic year 2014/2015", University of Turin, Italy

● SUPERVISION OF GRADUATE STUDENTS

2019	Mentor of 1 visiting PhD Student at ICMPE (UMR7182), CNRS, UPEC, Thiais (Paris), France - David Dreistadt
2016-2018	Tutor of 1 BSc, 3 MSc and 1 international internship student during their thesis work at University of Turin, Department of Chemistry and NIS, Torino, Italy - Sofia Sturari - Valerio Gulino - Jussara Barale - Umberto Spaliviero - Silvère Vaunois

● TEACHING ACTIVITIES

15/10-14/12/2018	"Laboratory of Inorganic Chemistry", BSc Degree in Chemistry, University of Turin, Italy (48h laboratory lessons, ca. 60 students)
07/06/2018	"Optimization and computation of thermodynamic proprieties and phase diagrams", PhD Course in Chemical and Material Science, University of Turin (4h tutoring of hands-on session, ca. 10 students)
23/10-03/11/2017	"Laboratory of Inorganic Chemistry", BSc Degree in Chemistry, University of Turin, Italy (40h laboratory lessons, ca. 60 students)

24-25/05/2017	"Polymeric materials Laboratory", MSc Degree in Forensic and Sports Clinical Chemistry, University of Turin, Italy (10h laboratory lessons, ca. 20 students)
15-23/05/2017	"Metallic materials Laboratory", BSc Degree in Material Science, University of Turin, Italy (30h laboratory lessons, ca. 30 students)
16-24/05/2016	"Metallic materials Laboratory", BSc Degree in Material Science, University of Turin, Italy (37h laboratory lessons, ca. 30 students)

● ORGANISATION OF SCIENTIFIC MEETINGS

13-14/06/2019	Local organisation committee of: "The Second French-Australian Energy Symposium", Le Croisic (Nantes), France, (ca. 40 participants)
15-18/04/2018	Local organisation committee of: "International Hydrogen Energy Agency meeting (IHEA), TASK32 meeting", San Servolo (Venice), Italy (ca. 30 participants)

● INSTITUTIONAL RESPONSIBILITIES

2021	Elected Chair and organiser of the Gordon Research Seminars on Hydrogen-Metal System 2021, Switzerland
2010-2018	Faculty member as representative of BSc, MSc and PhD students at the Department of Chemistry, University of Turin, Italy
24/11/2017	Organizer of the Internal Seminar: "Gender equality: don't change women, change the system", Department of Chemistry, University of Turin, Turin, Italy (ca. 20 participants)
2010-2015	Member of the faculty didactical committee for BSc and MSc degree in Industrial Chemistry, University of Turin, Italy

● REVIEWING ACTIVITIES

2018-2019	Review of 4 articles (2 for JALCOM, 1 for IJHE, 1 for Materials)

● MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2015-2016	Member of AIM – Italian Metallurgy Association
2015-2016	Member of SCI – Italian Chemical Society

● MAJOR COLLABORATIONS

Collaboration with Academic Research Institutions	***Topic***
Prof. Marcello Baricco, Prof. Paola Rizzi, Prof. Mauro Palumbo, Prof. Livio Battezzati, Dr. Gianluca Fiore (MET Group);	Metallurgical synthesis and characterizations
Prof. Silvia Bordiga, Prof. Elena Groppo, Dr. Matteo Signorile, Prof. Giuseppe Spoto, Dr. Lorenzo Mino, (SURFIN Group)	Spectroscopic characterisation of materials
Prof. Piero Ugliengo (TEO Group) - Department of Chemistry, University of Turin, Italy	*Ab-Initio* Calculations (DFT)
Dr. Marta Corno – Department of Science and Innovation Technology (DISIT), Università del Piemonte Orientale, Italy	*Ab-Initio* Calculations (DFT)
Prof. Torben Renè Jensen, Dr. Bo Richter, Prof. Mogens Christensen – Department of Chemistry and Centre for Materials Crystallography, Aarhus University, Denmark	Synthesis and advance structural characterization of complex hydrides (borohydrides)
Prof. Martin Dornheim, Dr. Claudio Pistidda, Prof. Thomas Klassen – Department of Nanotechnology, Helmholtz-Zentrum Geesthacht, Germany	Reactive ball milling and in-situ synchrotron radiation x-ray diffraction of metal and complex hydrides

Dr. Mark Paskevicius – Fuels and Energy Technology Institute, Curtin University, Australia	Synthesis and multi-technique characterization of closo-boranes
Dr. Michel Latroche, Dr. Fermin Cuevas, Dr. Jean-Marc Joubert – ICMPE, CNRS, France	CALPHAD method, synthesis and multi-technique characterization of metal and complex hydrides

Collaborative International Networks of EU Projects involving the ER	***Project Title***
BOR4STORE FCH-JU: www.hzg.de/mw/bor4store EMPA (CH), Abengoa Hidrogeno (ES), Institute for Energy Technology (NO), KatChem (CZ), Helmholtz-Zentrum Geesthacht (DE), National Centre for Scientific Research "Demokritos" (GR), Università di Torino NIS (IT), University of Aarhus (DK), ZOZ GmbH (DE).	Fast, reliable and cost-effective boron hydride based high capacity solid state hydrogen storage materials
ECOSTORE ITN: www.hzg.de/ms/ecostore CNRS (FR), Helmholtz-Zentrum Geesthacht (DE), Institute for Energy Technology (NO), National Centre for Scientific Research "Demokritos" (GR), Rockwood Lithium GmbH (DE), SAFT SAS (FR), Università di Torino NIS (IT), Université de Genève (CH), University of Aarhus (DK), University of Southern Denmark (DK), University of Birmingham (UK), University of Stuttgart (DE), ZOZ GmbH (DE), Tohoku University (Japan) Kyushu University (Japan).	Novel Complex Metal Hydrides for Efficient and Compact Storage of Renewable Energy as Hydrogen and Electricity
HyCARE FCH-JU: http://hycare-project.eu University of Turin (IT), ENGIE Lab CRIGEN (FR), GKN Sinter (DE), Tecnodelta s.r.l. (IT), Stühff GmbH (DE), Fondazione Bruno Kessler (IT), Helmholtz-Zentrum Geesthacht (DE), CNRS (FR), Institutt for Energiteknikk (NO), Environment Park S.p.A. (IT)	Hydrogen CArrier for Renewable Energy Storage

● EXPERIMENTS AT LARGE SCALE SYNCHROTRON FACILITIES

2015-2018	6 beamtime at: MaxLab (Lund, Sweden), Diamond (Didcot, UK), ESRF (Grenoble, France); PETRA (Hamburg, Germany), of which: 3 beamtime proposed by the ER and accepted after peer-reviewed proposal submission (at ESRF and PETRA)
2019-2020	2 neutron beamtime proposed by the ER and accepted after peer-reviewed proposal submission at ILL (Grenoble, France | https://doi.ill.fr/10.5291/ILL-DATA.5-22-771) and ISIS (Didcot, UK | https://data.isis.stfc.ac.uk/doi/STUDY/108681923)

● LIST OF MAJOR PUBLICATIONS

Publication summary
14 peer-reviewed articles on international (ISI) journal, of which 1 conference proceeding, 1 Viewpoint, 5 in special issues, 9 open access, 8 ER 1st author.

Bibliometric Indexes
ISI Google Scholar, updated 10/09/2019
Sum of Times Cited = 45
h-index = 5

Articles on international (ISI) journals with IF updated 30/08/2019

1. **Dematteis, E.M.***, Cuevas F., Latroche M. – "Hydrogen storage properties of Mn and Cu for Fe substitution in $TiFe_{0.9}$ intermetallic compound" – JALCOM, 2020, in press, 156075. **Green Open Access** | https://doi.org/10.1016/j.jallcom.2020.156075 | IF: 4.650
   Datasets: 10.5281/zenodo.3772198; 10.5281/zenodo.3772526
2. Bannenberg L.J., Heere M., Benzidi H., Montero J., **Dematteis E. M.**, Suwarno S., Jaroń T., Winny M., Orłowski P.A., Wegner W., Starobrat A., Fijałkowski K.J., Grochala W., Qian Z., Bonnet J.-P., Nuta I., Lohstroh W., Zlotea C., Mounkachi O., Cuevas F., Chatillon C., Latroche M., Fichtner M., Baricco M., Hauback B.C., El Kharbachi A. – "Metal (boro-) hydrides for high energy density storage and relevant emerging technologies" – IJHE, **2020**, in press. | https://doi.org/10.1016/j.ijhydene.2020.08.119 | IF: 4.939

3. Barale, J., Deledda, S., **Dematteis, E.M.**, Sørby M.H., Baricco M., Hauback B.C. – "Synthesis and characterization of Magnesium-Iron-Cobalt complex hydrides." – Sci. Rep, **2020**, 10, 9000. **Open Access** | https://doi.org/10.1038/s41598-020-65774-8 | IF: 3.998
4. El Kharbachi A., **Dematteis E. M.**, Shinzato K., Stevenson S. C., Bannenberg L. J., Heere M., Zlotea C., Szilágyi P. Á., Bonnet J.-P., Grochala W., Gregory D. H., Ichikawa T., Baricco M., Hauback B. C. – "Metal Hydrides and Related Materials. Energy Carriers for Novel Hydrogen and Electrochemical Storage" – JPPC, **2020**, 124, 14, 7599-7607. | **Viewpoint** | https://dx.doi.org/10.1021/acs.jpcc.0c01806 | IF: 4.189
5. Hadjixenophontos, E.; **Dematteis, E.M.**; Berti, N.; Wołczyk, A.R.; Huen, P.; Brighi, M.; Le, T.T.; Santoru, A.; Payandeh, S.; Peru, F.; Dao, A.H.; Liu, Y.; Heere, M. – "A Review of the MSCA ITN ECOSTORE - Novel Complex Metal Hydrides for Efficient and Compact Storage of Renewable Energy as Hydrogen and Electricity", Inorganics, **2020**, 8(3), 17. **Open Access** | **Special Issue** Beyond Hydrogen Storage - Metal Hydrides as Multifunctional Materials for Energy Storage and Conversion | https://doi.org/10.3390/inorganics8030017 | IF: 2.600
6. **Dematteis E. M.**, Jensen S.R., Jensen T.R., Baricco M. – "Heat capacity and thermodynamic properties of alkali and alkali-earth borohydrides" – The Journal of Chemical Thermodynamics, **2020**, 143, 106055. | https://doi.org/10.1016/j.jct.2020.106055 | IF: 2.888
7. **Dematteis E. M.**, Baricco M. – "Hydrogen Desorption in $Mg(BH_4)_2$-$Ca(BH_4)_2$ System" – Energies, **2019**, 12(17), 3230. **Open Access** | **Special Issue** Fundamental and Applied Hydrogen Storage Materials Development | https://doi.org/10.3390/en12173230 | IF (30/08/2019): 2.707
8. Gulino V., Brighi M., **Dematteis E. M**., Murgia F., Nervi C., Černý R., Baricco M. - "Phase Stability and Fast Ion Conductivity in the Hexagonal LiBH4–LiBr–LiCl Solid Solution", Chemistry of Materials, **2019**, 31, 14, 5133-5144 | https://doi.org/10.1021/acs.chemmater.9b01035 | IF (30/08/2019): 10.159
9. **Dematteis E. M.**, Pistidda C., Dornheim M., Baricco M. - "Exploring Ternary and Quaternary Mixtures in the LiBH4-NaBH4-KBH4-Mg(BH4)2-Ca(BH4)2 System", ChemPhysChem, **2019**, 20 (10), 1348-1359. | **Special Issue** Hydrogen Energy | https://doi.org/10.1002/cphc.201801130 | IF (30/08/2019): 3.077
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12. **Dematteis, E. M.**, Vaunois, S., Pistidda, C., Dornheim, M., Baricco, M. – "Reactive Hydride Composite of Mg2NiH4 with Borohydrides Eutectic Mixtures" - Crystals **2018**, 8 (2), 90. **Open Access**. | **Special Issue** Properties and Applications of Novel Light Metal Hydrides | http://doi.org/10.3390/cryst8020090 | IF (30/08/2019): 2.061
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● CONTRIBUTIONS TO CONGRESS

Posters (presenting author is underlined)

1. **Dematteis, E. M.**, et al. - "Thermodynamic investigation of the LiBH4-NaBH4 system." - 44th Danish Crystallographers & 7th DanScatt Annual Meeting, Denmark, Aarhus University, 28-29/05/2015
2. Albanese E., **Dematteis E. M.**, Pinatel E.R., et al. – "Bor4store @ UNITO" – BOR4STORE Closing Meeting, Instituto Cervantes, Hamburg, Germany, 28-29/09/2015
3. **Dematteis, E. M.**, Roedern, E., Pinatel, E. R., Corno, M., Jensen, T. R., Baricco, M. - "Experimental and computational investigations on the $LiBH_4$-$NaBH_4$ system" – 8èmes Journées Franco-Italiennes de Chimie / 8o Giornate Italo-Francesi di Chimica, France, Université d'Avignon, 25-26/04/2016
4. **Dematteis, E. M.**, Pinatel, E. R., Corno, M., Jensen, T. R., Baricco, M. - "$LiBH_4$-$NaBH_4$-KBH_4 pseudo-ternary system: experimental investigations and modelling" – HyDem 2016, Denmark, Aarhus University, 1-3/06/2016
5. **Dematteis, E. M.**, et al. - "A first experimental and theoretical modelling of thermodynamic properties of pseudo-ternary $LiBH_4$-$NaBH_4$-KBH_4 system" – MH2016, Switzerland, Interlaken, 7-12/08/2016
6. Baricco M., Wolczyk A., **Dematteis E. M.**, Belmonte N., Marano E., Castellero A., Rizzi P. - "Hydrides for Energy Storage"- Materials.it 2016, Italy, Catania, 12-16/12/2016
7. **Dematteis E. M.**, et al. - "Above room temperature heat capacity of alkali and alkaline earth borohydrides" – Gordon Research Seminar on Hydrogen-Metal System 2017, USA, Boston (MA), 15-16/07/2017

8. **Dematteis, E. M.**, Santoru A., Pistidda C., Dornheim M., Baricco, M. – "Toward high entropy complex hydrides" - Gordon Research Conference on Hydrogen-Metal System 2017, USA,Boston (MA), 16-21/07/2017
9. **Dematteis, E. M.**, Nervi, C., et al. - "Development of solid-state electrolytes by anion substitutions in lithium borohydride" - Giornate dell'elettrochimica italiana - GEI 2018, 21-25/01/2018, Sestriere, Torino, Italy
10. Gulino, V., **Dematteis, E. M.**, et al. - "Development of solid-state electrolytes by anion substitutions in lithium borohydride"-1st Intern. Symposium on Solid-State Batteries, 28-29/05/2018, EMPA, Dübendorf, Switzerland.
11. Barale J., Deledda S., **Dematteis E. M.**, Sørby M.H., Baricco M., Hauback B.C.- "Synthesis and Characterization of Magnesium-Iron-Cobalt Complex Hydrides" - 1st Workshop on Mechanochemistry of Metal Hydride–University of Oslo, Science Park Oslo, Norway, 30/05-01/06/2018.
12. **Dematteis, E. M.**, et al. - "Solubility in Borohydrides: Role of Thermal Treatment in Mechanochemistry" - 1st Workshop on Mechanochemistry of Metal Hydride–University of Oslo, Oslo, Norway, 30/05-01/06/2018.
13. **Dematteis E. M.**, Gulino V., Scaglione F., et al. - "Solubility in nanostructured Borohydrides prepared by Mechanochemistry" – NanoInnovation - Materiali Nanofasici 2018, Rome, Italy, 11-14/09/2018.
14. Gulino V., Brighi M., **Dematteis E. M.**, Murgia F., Nervi C., Cerny R., Baricco M. – "Phase Stability and Fast Ion Conductivity in the Hexagonal $LiBH_4$-LiBr-LiCl Solid Solution" - Gordon Research Seminar on Hydrogen-Metal System 2019, Spain, Castelldefels, 29-30/06/2019
15. Barale J., **Dematteis E. M.**, et al. - "Synthesis and Characterization of Magnesium-Iron-Cobalt Complex Hydrides" - Gordon Research Seminar on Hydrogen-Metal System 2019, Spain, Castelldefels, 29-30/06/2019
16. **Dematteis E. M.**, et al. – "HyCARE: Hydrogen CArrier for Renewable Energy storage" - Gordon Research Conference on Hydrogen-Metal System 2019, Spain, Castelldefels, 30/06/2019-05/07/2019
17. **Dematteis E. M.**, et al. – "HyCARE: Hydrogen CArrier for Renewable Energy storage" - Annual School on Neutron Diffraction Data Treatment using the FullProf Suite, ILL, Grenoble, France, 21-26/10/2019
18. **Dematteis E. M.**, *et al.* – "HyCARE: Hydrogen CArrier for Renewable Energy storage" - #RSCPoster Twitter Conference – 03/03/2020
19. **Dematteis E. M.**, *et al.* – "HyCARE: Hydrogen CArrier for Renewable Energy storage" – First Materials MDPI Poster Competition, on Twitter – 05/09/2020

Talks (presenting author is underlined)

1. Pinatel E. R., **Dematteis E. M.**, Baricco M., et al. - ISHE2016, 10th int. Symposium hydrogen Energy, Japan, Sendai, 21-25/02/2016 - "Assessment of phase diagrams in complex hydrides"
2. **Dematteis E. M.**, Wolczyk A., Corno M., Rizzi P., Castellero A., Baricco M. - AIMAT2016 & SIB2016, Italy, Ischia Porto, 13-15/07/2016 - "Assessment of phase diagrams in complex hydrides"
3. Baricco M., Wolczyk A. R., **Dematteis E. M.**, et al. - Thematic Meeting "Materials for Energy", Institute for Complex Systems, Italy, Rome, 09/09/2016 - "Hydrides for Energy Storage"
4. **Dematteis, E. M.**, Pinatel, E. R., Corno, M., Jensen, T. R., Baricco, M. - To.Ska.Lake Summer School - Total Scattering for Nanotechnology – Italy, Como (CO), 02/06/2017 - "Coupling Synchrotron Radiation Powder X-Ray Diffraction and Thermodynamic modelling on Complex Hydrides for Energy Storage"
5. **Dematteis, E. M.**, Metallurgy Lab. Seminar, Dep.t of Chemistry, UNITO – Italy, Turin (TO), 09/06/2017 – "Experimental investigation and thermodynamic modelling of mixtures of borohydrides for energy storage"
6. **Dematteis E. M.**, Jensen S. R., Jensen T. R., Baricco M. - EMRS, Fall Meeting 2017, Warsaw University of Technology, Poland, 18-21/09/2017 - "Heat capacity and Thermodynamic properties of borohydrides" - ***Awarded**: Best student oral presentation of symposium C.*
7. **Dematteis E. M.**, et al. - CIMTEC 2018 -8thForum on New Materials, Perugia (Italy), Symposium FC - "Thermodynamic Stability of Multi-Cation Complex Hydrides", 13/06/2018.
8. **Dematteis E. M.**, et al. - International Symposium on Metal-Hydrogen Systems, Guangzhou, China - "Polymorphic Transitions in Closo-Boranes", 29/10/2018
9. **Dematteis E. M.**, et al. - GDR -HySPàC (STOPHE), Le Croisic (Nantes), France, 11-13/06/2019 - "Mn and Cu substitutions in TiFe intermetallic compounds for large-scale hydrogen storage"
10. **Dematteis E. M.**, Berti N., Bornemann N., Neumann B., Baricco M., Cuevas F., Latroche M. - Gordon Research Seminars on Hydrogen-Metal System 2019, Spain, Castelldefels, 29-30/06/2019 - "Towards large-scale hydrogen storage in TiFe intermetallic compounds: state of art and outlook" - ***Invited talk***
11. **Dematteis E. M.**, et al. - EMRS, Fall Meeting 2019, Warsaw University of Technology, Poland, 16-19/09/2019 – "Substituted FeTi intermetallic compounds: towards large-scale hydrogen storage"
12. **Dematteis E. M.**, Cuevas F., Latroche M. - International Renewable and Sustainable Energy Conference (IRSEC19), Agadir, Morocco, 27-30/11/2019 - "Hydrogen storage properties of Mn and Cu substituted TiFe intermetallic compounds" - ***Invited talk***
13. Testi M. **Dematteis E. M.**, et al. - European Fuel Cell Technology & Applications Conference - Piero Lunghi Conference, Naples, Italy 9-11/12/2019 - "HyCARE: Hydrogen Carrier for renewable energy storage"
14. **Dematteis E. M.**, Cuevas F., Latroche M. – Seminar at the M2I Department, ICMPE, CNRS, Thiais, France, 14/01/2020 - "TiFe-based intermetallic compounds for large-scale hydrogen storage"