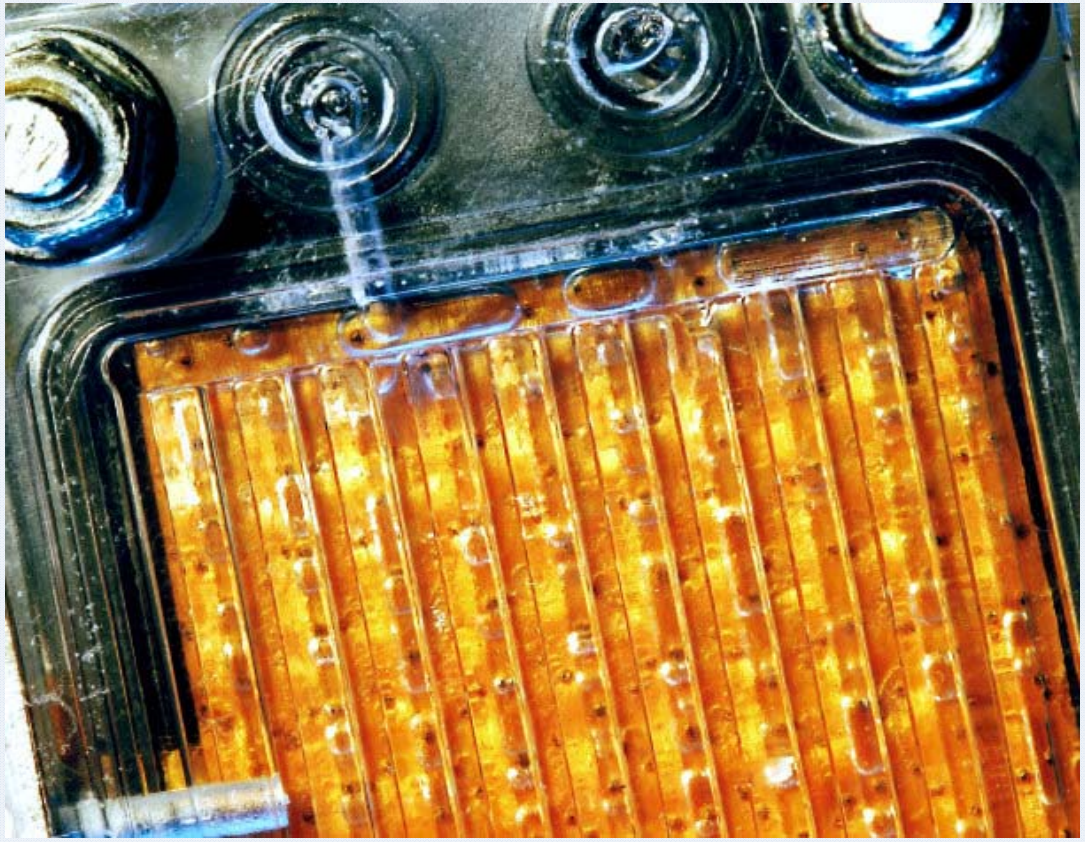


Welcome to the
First International Workshop

Durability and Degradation Issues in PEM Electrolysis Cells and its Components

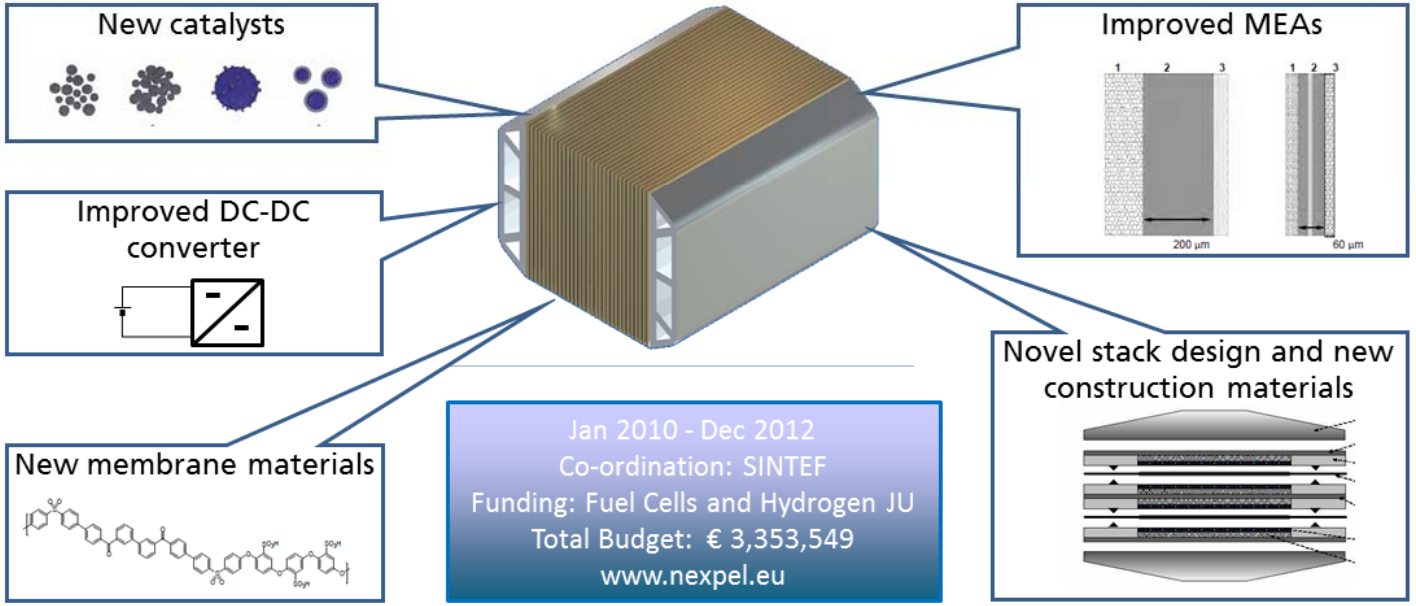
March 12th-13th, 2013
Fraunhofer ISE | Freiburg | Germany

First project NEXPEL

NEXPEL - Next-Generation PEM Electrolyser for Sustainable Hydrogen Production

NEXPEL main objective:

Develop and demonstrate a PEM water electrolyser integrated with RES:
75% Efficiency (LHV), H_2 production cost ~ €5,000 / Nm^3h^{-1}, target lifetime of 40,000 h



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SINTEF · University of Reading · Statoil · CEA · HELION HYDROGEN POWER · fumatech · Fraunhofer ISE

The next step of NEXPEL: NOVEL

"Novel materials and system designs for low cost, efficient and durable PEM electrolysers"

- Continuation of novel materials development
- System design and optimization
- Increased understanding of lifetime and degradation issues in PEM electrolysers

TEER COATINGS LTD
innovation and experience

Fraunhofer ISE

cea

Sept 2012 - Aug 2016
Total Budget: € 5,743,445

beneq

SINTEF

HELION
HYDROGEN POWER

JM
Johnson Matthey Fuel Cells
the power within

PAUL SCHERRER INSTITUT
PSI

Programme: Day 1 | March 12th, 2013

Session 1: Industrial view on life-time of PEM electrolysers

Chair: Tom Smolinka

09:30	**R&D Focus Areas Based on 60,000 hr Life PEM Water Electrolysis Stack Experience** Everett Anderson | Proton OnSite | USA
10:00	**PEM Electrolyser Degradation Mechanisms and Practical Solutions** Nicholas van Dijk | ITM Power | Great Britain
10:30	**Coffee break**
11:00	**Recent Advances in PEM Water Electrolysis** Joseph Cargnelli | Hydrogenics | Canada
11:30	**$CETH_2$'s Technology Roadmap and Life-time Expectations in PEM Electrolysis** Fabien Auprêtre | $CETH_2$ | France
11:50	**Corrosion Resistant Metallic Components for Electrochemical Devices** Conghua Wang | TreadStone Technologies | USA
12:20	**Panel discussion:** Moderation: Tom Smolinka
13:00	**Lunch break**

Programme: Day 1 | March 12th, 2013

Session 2: Scientific perspective on degradation and endurance

Chair: Christopher Hebling

14:30	**Degradation issues in NEXPEL and NOVEL** Magnus Thomassen | SINTEF | Norway
15:00	**The BBC Membrel Process - A retrospective view.** Günther Scherrer | Paul Scherrer Institute | Switzerland
15:30	**In-situ electrochemical characterization of PEM Water Electrolysis electrodes** Pierre Millet | Université Paris-Sud | France
16:00	**Coffee break**
16:30	**High pressure PEM electrolysers: efficiency, life-time and safety issues** Vladimir Fateev | NRC "Kurchatov Institute“ | Russia
17:00	**Panel discussion:** Moderation: Christopher Hebling
17:30	**Enquiry on degradation and life-time issues** Completion of a questionnaire
18:00	**End of day one**
19:30	**Evening event** Dinner at Freiburg’s restaurant “Wolfshöhle” (Meeting point: Lobby Hotel “Stadt Freiburg” at 18:40)

Programme: Day 2 | March 13th, 2013

Session 3: Accelerated stress tests for PEM electrolysis

Chair: Magnus Thomassen

09:00	**Approaches and methodology on accelerated stress tests in fuel cells** Nada Zamel | Fraunhofer ISE | Germany
09:45	**Accelerated stress tests in PEM fuel cells: What can we learn from it?** David Wilkinson | University of British Columbia | Canada
10:30	**Coffee break**
11:00	**Results of the questionnaire** Tom Smolinka | Fraunhofer ISE | Germany
11:30	**Discussion on further activities** Moderation: Magnus Thomassen
12:30	**Lunch break**
13:30	**Lab tour** - if desired - incl. hydrogen filling station Emile Tabu Ojong | Fraunhofer ISE | Germany (Meeting point: Foyer SIC at 13:15)

Please note that:

- Presentations will be provide later at the project webpage:
  www.novelhydrogen.eu
  (available soon, permission of the presenters is required)
- Main results of the questionnaire will be put as well on the webpage
- The restaurant "Wolfshöhle" is fully booked! ➔ Please inform us, …
  - Either you are registered and will not come
  - Or you are not registered and would like to come (waiting list)

- And hopefully we will see you again ➔ 2nd workshop in 2 years

We wish you an interesting and prosperous workshop!