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Deliverable 7.4: Participation in technology transfer events

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Dissemination activities

Besides publication of selected information from the experiments and data analysis of the project in international “peer reviewed” journals, dissemination of the information to is also done through the participation in relevant conferences/technology transfer events.

A detailed list of the conferences/technology transfer events attended is provided below.

Conferences

2013

- "Investigation of the influence of proton transport on the kinetics of the oxygen reduction reaction in a layer of vertically aligned carbon nanofilaments", M. Rouhet, S. Bozdech, P.S. Ruvinskiy, A. Bonnefont, E.R. Savinova, 2nd International Symposium on Chemistry for Energy Conversion and Storage, January 27-30, 2013, Berlin, Germany (Poster).
- "Investigation of the influence of proton transport in ordered catalytic layers based on vertically aligned carbon nanofilaments on the kinetics of the oxygen reduction reaction", M. Rouhet, S. Bozdech, P.S. Ruvinskiy, A. Bonnefont, E.R. Savinova, Journées Scientifiques Institut de Chimie de Strasbourg UMR 7177, 10-11 janvier 2013, Strasbourg, France (Oral presentation).

2012

- “In-operando investigations of Adsorption and Poisoning Processes on Pt Catalyst Surfaces in HT-PEM fuel cells”, S. Kaserer, C. Roth, HT-PEM seminar, 3 December 2012, Jülich, Germany
- “Mathematical modelling of platinum dissolution kinetics in a low temperature PEM type fuel cell”, M. Drakselová, R. Kodým, S. Sunde, K. Bouzek 5th Czech-Austrian workshop: New trends in photo and electro catalysis, 28.-30.11. 2012, Hnanice, Czech Republic.
- “Fuel Cell Electric Vehicles”, E.R. Savinova, lecture for general public at the University of Strasbourg, 18 October 2012.
- “Performance of a High-Temperature Polymer Electrolyte Membrane Fuel Cell under Mechanical Compression Control”, Anja Diedrichs, Peter Wagner Honolulu/Hawaii, USA, 9th of October 2012.

- “Cooperative behaviour during bulk CO electrooxidation reaction on Pt microelectrode arrays”, D.A. Crespo-Yapur, A. Bonnefont, R. Schuster, K. Krischer, E.R. Savinova, Electrochemistry 2012, Munich, Germany, September 17-19, 2012 (oral presentation).
- “HT-PEM Fuel Cell: Compression Analysis by Electrochemical Characterization and Micro-Computed Tomography”, Anja Diedrichs, Udo Martin, Peter Wagner. Presentation at CARISMA2012, Copenhagen/Denmark, 3rd of September 2012.
- “Using X-Ray Photoelectron Spectroscopy for studying electrode/electrolyte interfaces”, E.R. Savinova, Dubna (Russia), Molecular Aspects of Solid State Chemistry and Interfacial Electrochemistry, 26-30 August, 2012(Invited).
- “Effect of Compression on the Performance of a HT-PEM Fuel Cell”, Anja Diedrichs, Peter Wagner. Presentation at the Electromembrane Processes and Materials Conference (Satellite Meeting of 63rd ISE Meeting), Cesky Krumlov/Czech Republic, 27th of August 2012.
- “In operando studies to elucidate reactions at fuel cell catalysts“ C. Roth, D. Dixon, S. Kaserer, A.Schoekel, A. Habereeder, J. Melke, K. Caldwell, D.E. Ramaker, 244th ACS national meeting & exposition, 19-23 August 2012, Philadelphia, USA (oral presentation, invited)
- “Finite size effects and potential oscillations during CO bulk electro-oxidation on coupled Pt microelectrodes”, D.A. Crespo-Yapur, A. Bonnefont, R. Schuster, K. Krischer, E.R. Savinova, The 63rd Annual Meeting of the International Society of Electrochemistry, Prague, Czech Republic, August 19-24, 2012
- “Separation of anode and cathode potentials in high temperature PEM fuel cells“, S. Kaserer, J. Melke, A. Schoekel, C. Roth, Electromembrane Processes and Materials, 26-29 August 2012, Cesky Krumlov, Czech Republic (oral presentation)
- “Degradation of the high temperature PEM fuel cell components“, P. Mazúr, M. Paidar, J. Hnát, K. Bouzek: Lecture L4-8, Electromembrane Processes and Materials, 26.-29.8. 2012, Český Krumlov, Czech Republic.
- “Mathematical Modelling of PEM Type Fuel Cell Degradation – Precipitation of Pt Particles in Membrane“, M. Drakselová, R. Kodým, S. Sunde, K. Bouzek Poster S10-043, 63rd Annual Meeting of the International Society of Electrochemistry, 19.-24.8. 2012, Prague.
- “On the degradation of Pt/C gas diffusion layer/electrode for high temperature PEM fuel cell“, T. Bystroň, K. Bouzek: Lecture L4-10, Electromembrane Processes and Materials, 26.-29.8. 2012, Český Krumlov, Czech Republic.

- “Evaluation of kinetic data of the Pt based GDE degradation in H₃PO₄ under the conditions of high temperature PEM fuel cells”, R. Kodým, M. Drakselová, T. Bystroň, K. Bouzek Lecture L5-2, Electromembrane Processes and Materials, 26.-29.8. 2012, Český Krumlov, Czech Republic.
- “Two dimensional mathematical model of Pt based catalyst degradation in PEM type fuel cells”, M. Drakselová, R. Kodým, S. Sunde, K. Bouzek: Lecture L4-11, Electromembrane Processes and Materials, 26.-29.8. 2012, Český Krumlov, Czech Republic.
- “Two-dimensional mathematical model of Pt dissolution, transport and redistribution in low temperature PEM type fuel cell”, R. Kodým, M. Drakselová, S. Sunde, K. Bouzek Lecture no. FC7.5, 19th World Hydrogen Energy Conference, 3.-7.7. 2012 Toronto, Canada.
- “High-Temperature PEMFCs: The Effect of Compression”, Anja Diedrichs, Peter Wagner, Olaf Conrad Poster at the European Fuel Cell Forum, Lucerne/Switzerland, July 2012.
- “An ambient pressure XPS investigation of potential driven processes in a membrane-electrode assembly of a high temperature PEM”, Y.T. Law, S. Zafeiratos, S. Neophytides, A. Orfanidi, T. Dintzer, R. Arrigo, A. Knop, R. Schlögl, E.R. Savinova, 2nd Ertl symposium, Stuttgart, June 24 - 27, 2012(Invited).
- “In situ spectroscopic monitoring of platinum/ polymer electrolyte interface under controlled polarization”, Y.T. Law, S. Zafeiratos, S. Neophytides, A. Orfanidi, T. Dintzer, R. Arrigo, A. Knop, R. Schlögl, E.R. Savinova, 3rd International Symposium on Surface Imaging/Spectroscopy at the Solid/Liquid Interface, Kraków, May 27th – June 1st, 2012(invited).
- “Analysing the adsorption behaviour of H₃PO₄ at different conditions in HT-PEM fuel cells using in operando X-ray Absorption Spectroscopy” S. Kaserer, M. Soehn, A. Schoekel, D. Dixon, A. Wolz, B. Peter, K. M. Caldwell, D. E. Ramaker, C. Roth, Fuel Cells 2012 Science & Technology - A Grove Fuel Cell Event, 11-12 April, 2012, Berlin, Germany (poster)
- “Current Investigations on Batteries and Fuel Cells”, Eva Hammer, Peter Wagner: NEXT ENERGY Presentation at the Karl-Winnacker-Institute (DECHEMA), Frankfurt/Germany, 20th March 2012.

2011

- “Electrocatalysis on bimetallic surfaces: some recent advances”, E.R. Savinova, Electrocatalysis: Present and Future, Alicante, Spain, 14-17 November 2011 (Key-note).
- “Oxygen Reduction Reaction on 3D Electrodes based on Vertically Aligned Carbon Nanofilaments”, A. Bonnefont, P.S. Ruvinskiy and E.R. Savinova, Elecnano4-7th Echems, May 23- 26, 2011, Paris, France (Oral presentation).

- "Investigation of the proton transport in a layer of vertically aligned carbon nanofilaments (VACNFs) in liquid electrolyte", M. Rouhet, P.S., Ruvinskiy, E.R. Savinova, A. Bonnefont, PMNA, 18 février 2011, Strasbourg, France (Poster).
- "Cathode Materials for Polymer Electrolyte Fuel Cells based on Vertically Aligned Carbon Filaments", E.R. Savinova, A. Bonnefont, M. Rouhet, P. S. Ruvinskiy, C. Pham-Huu, K.A. Friedrich, 11th Polymer Electrolyte Fuel Cell Symposium within 220th Electrochemical Society Meeting in Boston, USA, October 9 - 14, 2011.
- "Preparation and Characterization of Pt/Modified MWCNT as Electrocatalysts for High Temperature PEMFCs", A.Orfanidi, M.Daletou and S.Neophytides, 8th Greek Scientific Conference of Chemical Engineering, 26-28 May 2011, Thessaloniki, Greece
- "Preparation and Characterization of Pt/Modified MWCNT as Electrocatalysts for High Temperature PEMFCs", A.Orfanidi, M.Daletou and S.Neophytides, 9th European Symposium on Electrochemical Engineering, June 19-23, 2011, Chania, Crete, Greece.
- "Functionalized carbon nanotubes and anode degradation in high temperature PEM fuel cells", A. Orfanidi, M.K. Daletou, S. G. Neophytides, 19th Annual International Conference on Composites or Nano Engineering, ICCE-19, July 24-30, 2011 in Shanghai, China.
- "What do we understand about the oxygen reduction reaction on Pt -based electrodes", E.R. Savinova, A. Bonnefont, P. S. Ruvinskiy, M.V. Lebedeva, 43rd IUPAC Congress, July 30th to August 7th 2011, San Juan, Puerto Rico, USA (Invited)
- "Challenges for Cathode Materials for Polymer Electrolyte Fuel Cells", International Conference "Energy Challenges for Advanced Materials and Processes: Harvesting, Storage and Efficient Utilization", M.V. Lebedeva, P. S. Ruvinskiy, M. Rouhet, A. Bonnefont, S. Zafeiratos, V. Papaefthymiou, V. Pierron-Bohnes, C. Pham-Huu, E.R. Savinova, 25 - 29 May 2011, Cappadocia, Turkey (invited).
- "Role of support in Electrocatalysis", E. R. Savinova, International conference "Fundamentals of Fuel Cell", January 2011, Grenoble, France (invited).
- "Oxygen Reduction Reaction on 3D Electrodes based on Vertically Aligned Carbon Nanofilaments", A. Bonnefont, P.S. Ruvinskiy and E.R. Savinova, Elecnano4-7th Echems, May 23- 26, 2011, Paris, France (Oral presentation).
- "Dvojomerný dynamický matematický model degradace katalytické vrstvy v palivovém článku typu PEM", M. Drakselová, R. Kodým, S. Sunde, K. Bouzek. 63. zjazd chemikov, 5.-9.9. 2011 Tatranské Matliare, Slovensko, ChemZi 7/13 (2011) 128 (in Czech language).

- “Two-dimensional dynamic mathematical model of catalytic layer degradation in PEM type fuel”, M. Drakselová, R. Kodým, S. Sunde, K. Bouzek 4th Czech-Austrian Workshop: New Trends in Photo-and Electrocatalysis, 5.-7.12 2011, Hnanice, Czech Republic.
- “Mathematical model of Pt particles dissolution and redistribution in the low temperature PEM type fuel cell”, M. Drakselova, R. Kodym, S. Sunde, K. Bouzek: Trendy v anorganické technologii 2011 (conference language - Czech), June 13 - 15, 2011, Pardubice/Czech Republic, book of abstracts - p. 83, ISBN: 978-80-7375-371-3.
- “Two-dimensional mathematical model of Pt catalyst degradation in the PEM type fuel cells”, M. Drakselova, R. Kodym, S. Sunde, K. Bouzek 9th ESEE, June 20 - 23, 2011, Crete/Greece, book of abstracts - p. 92.
- “Impact of catalyst layer composition on the high temperature PEM FC performance”, P. Mazúr, M. Doležel, M. Paidar, K. Bouzek: 9th European Symposium on Electrochemical Engineering, 19.-23.6. 2011 Chania, Greece.
- “Two-dimensional mathematical model of Pt catalyst degradation in the PEM type fuel cells”, M. Drakselová, R. Kodým, S. Sunde, K. Bouzek 9th European Symposium on Electrochemical Engineering, 19.-23.6. 2011 Chania, Greece.
- “Analysing the influence of H₃PO₄ as Catalyst Poison in High Temperature PEM Fuel Cells using in-situ X-ray Absorption Spectroscopy“, S. Kaserer, K. Caldwell, D.E. Ramaker, C. Roth, 220th Electrochemical Society Meeting, 9-14 October 2011, Boston, USA (oral presentation)
- “Long-term Endurance Investigations: Applied to Single HT-PEM MEAs as well as complete Fuel Cell based CHP Systems”, Peter Wagner: 2nd Degradation Workshop, Thessaloniki, 23rd of September, 2011.
- “NEXT ENERGY and present investigations on HT-PEM Membrane-Electrode-Assemblies”, Anja Diedrichs, Peter Wagner: Presentation at the Danish Power Systems and Danish Technical University, Lyngby, Denmark, 7th December 2011.

2010

- “Influence of the Molecular Structure on the Properties and Fuel Cell Performance of High Temperature Polymer Electrolyte Membranes”, J.K. Kallitsis, M. Geormezi, N. Gourdoupi, F. Paloukis, A.K. Andreopoulou, C. Morphopoulou and S. Neophytides, 10th Polymer Electrolyte Fuel Cell Symposium at the 218th Electrochemical Society Meeting, 10-15 October 2010, Las Vegas, USA.

- “Imidazole bearing aromatic polyethers targeting high temperature pem-fc applications”, Aikaterini Andreopoulou, George Drakos, Maria Daletou, 8th Hellenic Polymer Society Symposium, 24-29 October 2010, Crete, Greece.
- “Effect of the molecular structure on the properties of high temperature polymer electrolyte membranes”, Christine Morfopoulou, Maria Geormezi, Aikaterini K. Andreopoulou, Stylianos Neophytides, Joannis K. Kallitsis, 8th Hellenic Polymer Society Symposium, 24-29 October 2010, Crete, Greece.
- “Advent TPS® proton exchange membranes and MEAs for HT PEM fuel cells: Properties and Fuel Cell performance”, S. Neophytides, F. Paloukis, M. Geormezi, G. Paloumbis, J.K. Kallitsis, Fuel Cell Seminar and exposition, 18-21 October 2010, San Antonio, Texas, USA
- “Advent TPS® High Temperature PEM MEAs”, M. Geormezi, F.Paloukis, N. Gourdoupi, G. Paloumbis, S. Neophytides, J.K. Kallitsis , 2nd CARISMA International Conference on Progress in MEA materials for Medium and High temperature Polymer Electrolyte Fuel Cells, September 19-22nd 2010, Conference Centre, Palais des Congrès, La Grande Motte, France
- Preparation and Characterization of Pt/Modified MWNT as Electrocatalysts for High Temperature PEM Fuel Cells, 2nd CARISMA International conference on progress in MEA materials for Medium and High temperature PEM fuel cell, 19-22 september 2010 (poster)
- “Size, microstructure and texture in heterogeneous electrocatalysis”, E. R. Savinova, Frumkin Seminar, 15 October 2010, Moscow, Russia (Invited).
- “Electrocatalysis at supported metal nanoparticles”, Elena Savinova, ELCAT Training School on “Structural and electronic effects in electrocatalysis” 30 August –1 September, 2010, Oegstgeest, Oud Poelgeest Castle, The Netherlands (Invited).
- “Mass transport effects in oxygen electroreduction reaction”, P. S. Ruvinsky, A. Bonnefont, E. R. Savinova, International Symposium on Electrocatalysis: Molecular Level Approach to Modern Applications, 22– 25 August 2010, Kloster Irsee; Germany (invited).
- “Development of low platinum catalytic layers for PEM fuel cells”, P. S. Ruvinsky, S. N. Pronkin, A. Bonnefont, and E. R. Savinova, 18th World Hydrogen Energy Conference, May 16-21, 2010, Essen, Germany (invited).
- “Interplay of the electrochemical reaction and diffusion in 3D nanoparticle arrays”, P. S. Ruvinsky, A. Bonnefont, E. R. Savinova, 1st Ertl Symposium on Electrochemistry and Catalysis, 11-14 April 2010, GIST, Gwangju, South Korea (Key-note).

- “Nanoscopic and mesoscopic effects in electrocatalysis”, E. R. Savinova, A. Bonnefont, S.N. Pronkin, P. S. Ruvinsky, A. N. Kuznetsov, 1st Korea-EU Networking Forum on Energy and Nanobio Technologies, April 14-16, 2010, Damyang Resort, South Korea (invited).
- “From Metal Nanoparticles to the Catalytic Layer Architectures”, E. R. Savinova, March 22-23, 2010, Southampton Electrochemistry Group Spring Meeting, Southampton , UK (*invited*).
- “Electrocatalysis on 3D electrodes based on aligned carbon nano-filaments”, P. Ruvinskiy, A. Bonnefont, M. Houle, C. Pham-Huu, E.R. Savinova, The 61st Annual Meeting of the International Society of Electrochemistry, September 26th - October 1st 2010, Nice, France (Oral presentation).
- “Cooperative phenomena in 3D nanostructured electrodes: CO bulk electrooxidation on Pt nanoparticles supported on vertically aligned carbon nanofilaments”, A.Bonnefont, P.S. Ruvinskiy, M. Bayati, E.R. Savinova, The 61st Annual Meeting of the International Society of Electrochemistry, September 26th - October 1st 2010, Nice, France (Oral presentation).
- “Oxygen reduction reaction: what can we learn by applying 3D ordered catalytic layer architectures?” P. S. Ruvinskiy, A. Bonnefont, M. Houllé, C. Pham-Huu, E.R., Savinova, Gordon Research Conference on Fuel Cells, 2010, Smithfield, USA (Oral “flash” presentation).
- "Influence du transport de protons dans des couches catalytiques ordonnées tridimensionnellement sur l'adsorption de l'hydrogène", M. Rouhet, P.S. Ruvinskiy, E.R. Savinova, A. Bonnefont, GDR PACS 3339 , Lille, France, 6-8 décembre 2010 (Oral presentation).
- "Investigation of the proton transport in a layer of vertically aligned carbon nanofilaments (VACNFs) in liquid electrolyte", M. Rouhet, P.S., Ruvinskiy, E.R. Savinova, A. Bonnefont, PMNA, 18 février 2011, Strasbourg, France (Poster).
- “Two-dimensional mathematical model of Pt catalyst degradation in the PEM type fuel cells” M.Drakselová, R. Kodým, S. Sunde, K. Bouzek. 9th European Symposium on Electrochemical Engineering, 19.-23.6. 2011 Chania, Greece.
- "High-Temperature Polymer Electrolyte Membrane Fuel Cells: The Effect of Compression", A. Diedrichs, P. Wagner, A. Dyck, European Fuel Cell Forum 2011, Lucerne / Switzerland, 28.06.-01.07.2011 (poster).
- K. Bouzek, R. Kodým, S. Sunde: Mathematical Modelling of Platinum Catalyst Dissolution and Redistribution in the PEM Type Fuel Cell. 61st Annual Meeting of the International Society of Electrochemistry, 26.9.-1.10. 2010, Nice, France.

Events

- “Understanding the Degradation Mechanisms of Membrane-Electrode-Assembly for High Temperature PEMFCs and Optimization of the Individual Components” presented at Stakeholders General Assembly 2010, Brussels, 9-10 November
- “Understanding the Degradation Mechanisms of Membrane-Electrode-Assembly for High Temperature PEMFCs and Optimization of the Individual Components” presented at Programme Review Day 2011 Brussels, 22 November
- “Understanding the Degradation Mechanisms of Membrane-Electrode-Assembly for High Temperature PEMFCs and Optimization of the Individual Components” presented at Programme Review Day 2012 Brussels, 8-29 November

Workshops:

TUD:

08.10.2010: XAS, ANKA Karlsruhe.

19./26.10.2010: XAS (EXAFS and $\Delta\mu$ XANES), TU Darmstadt by Dr. C. Roth and Prof. Dr. D. Ramaker.

XAS Beamtimes:

20.-25.05.2010: Hasylab X1, Hamburg.

06.-08.09.2010: Hasylab X1, Hamburg.

27.-30.09.2010: Hasylab X1, Hamburg.

08.-12.11.2010: Hasylab X1, Hamburg.

09.-13.05.2011: Hasylab X1, Hamburg.

17.10. – 25.10.2011: $\Delta\mu$ XANES Workshop, GWU Washington D.C. by Prof. Dr. Ramaker

XAS Beamtimes:

26.08. – 01.09.2011: DESY, Hasylab X1, Hamburg

19.10. – 22.10.2011: ANKA, Karlsruhe

03.11. – 05.11.2011: DESY, Hasylab X1, Hamburg (exsitu beamtime)

26.04. – 01.05.2012: DESY, Hasylab X1, Hamburg

02.08. – 07.08.2012: DESY, Hasylab X1, Hamburg

NEXT ENERGY:

2nd Degradation Workshop, Thessaloniki, September, 2011;

DECODE and GENIUS workshop, Belfort, France, June 2012;

Stack Durability Prognosis Workshop, Freiburg, Germany November, 2012.