Curriculum Vitae

Dr. Lars Röntzsch

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Employment History

01/2013 to date	Head of department »Hydrogen Technology« at the Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM
09/2007 – 12/2012	Group manager at Fraunhofer IFAM
05/2007 – 08/2007	Research staff at Dresden University of Technology, Institute of Materials Science
11/2003 – 04/2007	Research staff at Research Center Dresden-Rossendorf, Institute for Ion Beam Physics and Materials Research

Education

12/2007	Graduation: *Doctor rerum naturalium* (grade: summa cum laude)
09/2003	Graduation: *Diplom-Physiker* (grade: very good)
09/2000 – 05/2001	Study of Physics, Philosophy & Int. Relations at Boston University, MA, USA
10/1997 – 09/2003	Study of Physics at Dresden University of Technology
06/1996	*Abitur* (grade: 1.0)
09/1984 – 06/1996	School attendance

Awards

IQ Innovationspreis Mitteldeutschland (category *Energy·Environment·Solar*), Naumburg, Germany, 2015.
f-cell Award (category *Science*), Stuttgart, Germany, 2013.
E.ON International Research Initiative Award, 2010.
Fraunhofer Attract Grant, 2007.
E-MRS Young Scientist Award, Strasbourg, France, 2004.
IBMM 2004 Poster Award, Monterey, USA, 2004.
Scholarship of the *Kulturstiftung Dresden der Dresdner Bank*, 2000 – 2001.

Skills and Expertise

Computer	C/C++, Kinetic Monte Carlo, Basic, Latex, PovRay, RasMol, TRIM, TRIDYN, FlexPDE, COMSOL Multiphysics, Maple, Adobe CS, Corel Draw, Origin, MS Office
Experimental	energy storage, hydrogen and fuel cells, electrochemistry, thin-film deposition, thermoanalysis, rapid solidification, metallurgy, metal powder technology, sintering, ion beam technology, electron microscopy, diffraction and scattering, X-ray and neutron imaging
Languages	German (native speaker), English (fluent), Spanish (basic), Russian (school level), Latin (school level), Ancient Greek (school level)
Hobbies	tennis, ancient Egypt, architecture, glazing techniques, fruit breeding

Publications

[54] A. Gabler, C. I. Müller, T. Rauscher, T. Gimpel, R. Hahn, M. Köhring, B. Kieback, L. Röntzsch, W. Schade, *Ultrashort-pulse laser structured titanium surfaces with sputter-coated platinum catalyst as hydrogen evolution electrodes for alkaline water electrolysis*, submitted (2017).

[53] T. Rauscher, C. I. Müller, A. Gabler, T. Gimpel, M. Köhring, B. Kieback, W. Schade, L. Röntzsch, *Femtosecond-laser structuring of Ni electrodes for highly active hydrogen evolution*, Electrochimica Acta, vol. 247, pp. 1130–1139 (2017).

[52] A. Gabler, C. I. Müller, T. Rauscher, M. Köhring, B. Kieback, L. Röntzsch, W. Schade, *Ultrashort pulse laser-structured nickel surfaces as hydrogen evolution electrodes for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 42, pp. 10826–10833 (2017).

[51] F. Heubner, S. Mauermann, B. Kieback, L. Röntzsch, *Anisotropic stress development in tubular metal hydride reactors*, Journal of Alloys and Compounds, vol. 705, pp. 176–182 (2017).

[50] M. Tegel, S. Schöne, B. Kieback, L. Röntzsch, *An efficient hydrolysis of MgH_2-based materials*, International Journal of Hydrogen Energy, vol. 42, pp. 2167–2176 (2017).

[49] I. Bürger, M. Dieterich, C. Pohlmann, L. Röntzsch, M. Linder, *Standardized hydrogen storage module with high utilization factor based on metal hydride-graphite composites*, Journal of Power Sources, vol. 342, pp. 970–979 (2017).

[48] C. Cremers, L. Röntzsch, *Brennstoffzellen als Range-Extender*, pp. 85–89, in R. Neugebauer (Ed.): *Ressourcen-effizienz*, Springer Vieweg, Berlin, 2017, ISBN 978-3-662-52888-4.

[47] A. Goldberg, C. Pohlmann, L. Röntzsch, C. Freitag, A. T. Tagne Saha, S. Ziesche, U. Partsch, *Highly Efficient and Long-Term Stable Micro Fuel Cell System Based on Ceramic Multilayer Technology*, 6th Electronic System-Integration Technology Conference (ESTC), Grenoble, France, pp. 1–6 (2016). DOI: 10.1109/ESTC.2016.7764494, available online: http://ieeexplore.ieee.org/document/7764494

[46] M. Tegel, L. Röntzsch, *PowerPaste für mobile und autarke Brennstoffzellen*, HZwei, vol. 16 (4), pp. 35–37 (2016).

[45] T. Rauscher, C. I. Müller, A. Schmidt, B. Kieback, L. Röntzsch, *Ni-Mo-B alloys as cathode material for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 41, pp. 2165–2176 (2016).

[44] C. I. Müller, K. Sellschopp, M. Tegel, T. Rauscher, B. Kieback, L. Röntzsch, *The activity of amorphous iron-based alloys as electrode materials for the hydrogen evolution reaction*, Journal of Power Sources, vol. 304, pp. 196–206 (2016).

[43] M. Dieterich, C. Pohlmann, I. Bürger, M. Linder, L. Röntzsch, *Long-term cycle stability of metal hydride-graphite composites*, International Journal of Hydrogen Energy, vol. 46, pp.16375–16392 (2015).

[42] F. Heubner, C. Pohlmann, S. Mauermann, B. Kieback, L. Röntzsch, *Mechanical stresses originating from metal hydride composites during cyclic hydrogenation*, International Journal of Hydrogen Energy, vol. 40, pp. 10123–10130 (2015).

[41] K. Herbrig, C. Pohlmann, Ł. Gondek, H. Figiel, N. Kardjilov, A. Hilger, I. Manke, J. Banhart, B. Kieback, L. Röntzsch, *Investigations of the Structural Stability of Metal Hydride Composites by In-situ Neutron Imaging*, Journal of Power Sources, vol. 293, pp. 109–118 (2015).

[40] C. Pohlmann, K. Herbrig, Ł. Gondek, N. Kardjilov, A. Hilger, H. Figiel, J. Banhart, B. Kieback, I. Manke, L. Röntzsch, *In Operando Visualization of Hydride-Graphite Composites during Cyclic Hydrogenation by High-Resolution Neutron Imaging*, Journal of Power Sources, vol. 277, pp. 360–369 (2015).

[39] J. Fu, M. Tegel, B. Kieback, L. Röntzsch, *Dehydrogenation properties of doped $LiAlH_4$ compacts for hydrogen generator applications*, International Journal of Hydrogen Energy, vol. 39, pp. 16362–16371 (2014).

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[31] C. Pohlmann, L. Röntzsch, T. Weißgärber, B. Kieback, *Heat and gas transport properties in pelletized hydride–graphite composites for hydrogen storage applications*, International Journal of Hydrogen Energy, vol. 38, pp. 1685–1691 (2013).

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[17] C. Pohlmann, L. Röntzsch, S. Kalinichenka, T. Hutsch, B. Kieback, *Magnesium alloy-graphite composites with tailored heat conduction properties for hydrogen storage applications*, International Journal of Hydrogen Energy, vol. 35, pp. 12829–12836 (2010).

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[13] L. Röntzsch, S. Kalinichenka, B. Kieback, *Microstructure and De-/Hydrogenation Behavior of Melt-Spun Mg-Ni-Y Alloys as Hydrogen Storage Materials*, pp. 1085–1090 in K.U. Kainer (Ed.): *Magnesium. Proceedings of the 8th International Conference on Magnesium Alloys and their Applications*, Wiley-VCH, Weinheim, 2009, ISBN: 978-3-527-32732-4.

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[10] L. Röntzsch, *Shape evolution of nanostructures by thermal and ion beam processing*, Wissenschaftlich-technische Berichte des Forschungszentrums Dresden-Rossendorf, FZR-488, 2008, 177 pages.

[9] L. Röntzsch, K.-H. Heinig, J. A. Schuller, M. L. Brongersma, *Thin film patterning by surface-plasmon-induced thermocapillarity*, Applied Physics Letters, vol. 90, pp. 044105/1–3 (2007).

[8] B. Schmidt, K.-H. Heinig, L. Röntzsch, K.-H. Stegemann, *Nanocluster memories by ion beam synthesis of Si in SiO_2*, Materials Science-Poland, vol. 25, pp. 1213–1222 (2007).

[7] B. Schmidt, A. Mücklich, L. Röntzsch, K.-H. Heinig, *How do high energy heavy ions shape Ge nanoparticles embedded in SiO_2?,* Nuclear Instruments and Methods in Physics Research B, vol. 257, pp. 30–32 (2007).

[6] L. Röntzsch, K.-H. Heinig, B. Schmidt, A. Mücklich, *Experimental evidence of Si nanocluster δ-layer formation in the vicinity of ion-irradiated SiO_2-Si interfaces*, Nuclear Instruments and Methods in Physics Research B, vol. 242, pp. 149–151 (2006).

[5] B. Schmidt, K.-H. Heinig, L. Röntzsch, T. Müller, K.-H. Stegemann, E. Votintseva, *Ion irradiation through SiO_2/Si interfaces: Non-conventional fabrication of Si nanocrystals for memory applications*, Nuclear Instruments and Methods in Physics Research B, vol. 242, pp. 146–148 (2006).

[4] L. Röntzsch, K.-H. Heinig, B. Schmidt, A. Mücklich, W. Möller, J. Thomas, T. Gemming, *Direct evidence of self-aligned Si nanocrystals formed by ion irradiation of Si/SiO_2 interfaces*, physica status solidi A, vol. 202, pp. R170–R172 (2005).

[3] L. Röntzsch, K.-H. Heinig, *Reaction pathways of ion beam synthesis and stability of monocrystalline nanowires*, pp. 165–169 in P. Pödör et al. (Eds.): *Proceedings Int. Workshop on Semicond. Nanocrystals*, Vol. 1, Budapest, Hungary, 2005, ISBN 963-7371-18-4.

[2] L. Röntzsch, K.-H. Heinig, B. Schmidt, *Experimental Evidence of Si Nanocluster δ-Layer Formation in Buried and Thin SiO_2 Films Induced by Ion Irradiation*, Materials Science in Semiconductor Processing, vol. 7, pp. 357–362 (2004).

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Patents

[7] L. Röntzsch, B. Kieback, M. Dieterich, I. Bürger, C. Pohlmann; *STORAGE ELEMENT FOR GASES*; DE102015213061 (A1), EP3118511 (A1).

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[5] M. Tegel, L. Röntzsch, B. Kieback; *COMPOSITE MATERIAL FOR HYDROLYTICALLY GENERATING HYDROGEN, DEVICE FOR HYDROLYTICALLY GENERATING HYDROGEN, METHOD FOR GENERATING HYDROGEN, DEVICE FOR GENERATING ELECTRIC ENERGY, AND POSSIBLE APPLICATIONS*; DE102014211422 (A1), WO2015189247 (A1).

[4] M. Tegel, L. Röntzsch, B. Kieback; *DEVICE AND METHOD FOR THE HYDROLYTIC PRODUCTION OF HYDROGEN, DEVICE FOR PRODUCING ELECTRICAL ENERGY AND POSSIBILITIES FOR USAGE*; DE102013211106 (A1), EP3008012 (A1), WO2014198948 (A1).

[3] M. Tegel, L. Röntzsch, T. Weißgärber, B. Kieback; *METHOD FOR RECLAIMING NEODYMIUM OXIDE FROM A STARTING MIXTURE*; DE102012017418 (B4), WO2014033004 (A1).

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[1] W. Hungerbach, B. Kieback, J. Kunze, L. Röntzsch, G. Stephani; *REVERSIBLE HYDROGEN STORAGE ELEMENT AND METHOD FOR THE FILLING AND EMPTYING THEREOF*; DE102007038779 (B4), WO2009018821 (A2), WO2009018821 (A3).