

Curriculum Vitae

Professor Dr. Lars Röntzsch

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h-index: 22 [as of 2022-12-05]
Research
Interest Score: 682.7 [as of 2022-12-05]



Employment History

From 07/2022 Chair of Thermal Energy Technology & Head of Hydrogen Research Center at Brandenburg University of Technology BTU in Cottbus
01/2013 – 06/2022 Head of department »Hydrogen technology« at Fraunhofer 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 Studies of Physics, Philosophy & International Relations at Boston University, MA, USA
10/1997 – 09/2003 Studies 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++, Epsilon Professional, ASPEN, Kinetic Monte Carlo, Basic, Latex, PovRay, RasMol, TRIM, TRIDYN, FlexPDE, COMSOL Multiphysics, Maple, Adobe CS, Corel Draw, Origin, MS Office
Experimental energy technology, hydrogen and fuel cells, renewable fuels, e-fuels, materials science, electro-chemistry, thin film deposition, thermoanalysis, 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

List of Publications

- [70] Ö. Akay, A. Bashkatov, E. Coy, K. Eckert, K. E. Einarsrud, A. Friedrich, B. Kimmel, S. Loos, G. Mutschke, L. Röntzsch, M. D. Symes, X. Yang, K. Brinkert, *Electrolysis in Reduced Gravitational Environments: Current Research Perspectives and Future Applications*, npj Microgravity, vol. 8, article no. 56 (2022).
DOI: [10.1038/s41526-022-00239-y](https://doi.org/10.1038/s41526-022-00239-y)
- [69] N. Kardjilov, A. Hilger, H. Markötter, A. Griesche, R. Woracek, F. Heubner, L. Röntzsch, M. Grosse, I. Manke, J. Banhart, *Quantification of hydrogen in metals applying neutron imaging techniques*, Microscopy and Microanalysis, vol. 28 (Suppl. 1), pp. 1666 (2022).
DOI: [10.1017/S1431927622006638](https://doi.org/10.1017/S1431927622006638)
- [68] C. I. Bernäcker, T. Gimpel, A. Bomm, T. Rauscher, S. Mauermann, M. Li, E. G. Hübner, W. Schade, L. Röntzsch, *Short pulse laser structuring as a scalable process to produce electrodes for large alkaline water electrolyzers*, Journal of Power Sources, vol. 538, pp. 231572 (2022).
DOI: [10.1016/j.jpowsour.2022.231572](https://doi.org/10.1016/j.jpowsour.2022.231572)
- [67] S. Metz, T. Smolinka, C. I. Bernäcker, S. Loos, T. Rauscher, L. Röntzsch, M. Arnold, M. Jahn, M. Kusnezoff, G. Kolb, U.-P. Apfel, C. Doetsch, *Wasserstoffherzeugung durch Elektrolyse und weitere Verfahren*, in R. Neugebauer (Ed.): *Wasserstofftechnologien*, Berlin, Springer Vieweg, 2022, ISBN 9783662645116.
DOI: [10.1007/978-3-662-64939-8_9](https://doi.org/10.1007/978-3-662-64939-8_9)
- [66] F. Foroughi, C. I. Bernäcker, L. Röntzsch, B. G. Pollet, *Understanding the Effects of Ultrasound (408 kHz) on the Hydrogen Evolution Reaction (HER) and the Oxygen Evolution Reaction (OER) on Raney-Ni in Alkaline Media*, Ultrasonics Sonochemistry, vol. 84, pp. 105979 (2022).
DOI: [10.1016/j.ultsonch.2022.105979](https://doi.org/10.1016/j.ultsonch.2022.105979)
- [65] C. I. Bernäcker, S. Loos, T. Rauscher, T. Weißgärber, B. Kieback, L. Röntzsch, *Pulvermetallurgie zur Herstellung von Elektroden für Power-to-X-Anwendungen*, pp. 147–157 in C. Broeckmann, H. Danninger, T. Weißgärber (Eds.): *Pulvermetallurgie – Nachhaltige Lösungen und neue Märkte*, Proceedings of the 39th Hagener Symposium, Heimdall-Verlag, Witten, 2021, ISBN 9783946537700.
- [64] M. Vogt, F. Heubner, T. Weißgärber, L. Röntzsch, *Nachhaltige Wasserstoff-on-demand-Lösung — Gesteuerte Hydrolysereaktion zur ubiquitären Wasserstoffversorgung*, HZwei (ISSN: 1862-393X), vol. 20 (4), pp. 28–30 (2020).
- [63] R. Baumann, T. Rauscher, C. I. Bernäcker, C. Zwahr, T. Weißgärber, L. Röntzsch, A. F. Lasagni, *Laser Structuring of Open Cell Metal Foams for Micro Scale Surface Enlargement*, Journal of Laser Micro/Nanoengineering, vol. 15, pp. 132–138 (2020).
DOI: [10.2961/jlmn.2020.02.2010](https://doi.org/10.2961/jlmn.2020.02.2010)
- [62] F. Heubner, T. Weißgärber, L. Röntzsch, *Solid Hydrogen Carriers als H₂-Speicher*, HZwei (ISSN: 1862-393X), vol. 20 (2), pp. 26–29 (2020).
- [61] H. A. Miller, K. Bouzek, J. Hnát, S. Loos, C. I. Bernäcker, T. Weißgärber, L. Röntzsch, J. Meier-Haack, *Green hydrogen from anion exchange membrane water electrolysis: A review of recent developments in critical materials and operating conditions*, Sustainable Energy & Fuels, vol. 4, pp. 2114–2133 (2020).
DOI: [10.1039/C9SE01240K](https://doi.org/10.1039/C9SE01240K)
- [60] L. Röntzsch, F. Heubner, S. Mauermann, T. Weißgärber, B. Kieback, *Fortschrittliche Metallhydrid-Werkstoffe für die Wasserstofftechnologie*, pp. 245–262 in H. Danninger, L. Sigl, M. Schneider (Eds.): *Pulvermetallurgie – Schlüsseltechnologie für innovative Systemlösungen*, Proceedings of the 38th Hagener Symposium, Heimdall-Verlag, Witten, 2019, ISBN 9783946537656.
- [59] T. Rauscher, C. I. Bernäcker, S. Loos, M. Vogt, B. Kieback, L. Röntzsch, *Spark-Plasma-Sintered Porous Electrodes for Efficient Oxygen Evolution in Alkaline Water Electrolysis*, Electrochimica Acta, vol. 317, pp. 128–138 (2019).
DOI: [10.1016/j.electacta.2019.05.102](https://doi.org/10.1016/j.electacta.2019.05.102)

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DOI: [10.1016/j.electacta.2019.03.107](https://doi.org/10.1016/j.electacta.2019.03.107)
- [57] C. I. Bernäcker, T. Rauscher, T. Büttner, B. Kieback, L. Röntzsch, *A powder metallurgy route to produce Raney-Ni electrodes for alkaline water electrolysis*, *Journal of The Electrochemical Society*, vol. 166, pp. F357–F363 (2019).
DOI: [10.1149/2.0851904jes](https://doi.org/10.1149/2.0851904jes)
- [56] T. Rauscher, C. I. Bernäcker, U. Mühle, B. Kieback, L. Röntzsch, *The effect of Fe as constituent in Ni-base alloys on the oxygen evolution reaction in alkaline solutions at high current densities*, *International Journal of Hydrogen Energy*, vol. 44, pp. 6392–6402 (2019).
DOI: [10.1016/j.ijhydene.2019.01.182](https://doi.org/10.1016/j.ijhydene.2019.01.182)
- [55] F. Heubner, A. Hilger, N. Kardjilov, I. Manke, B. Kieback, Ł. Gondek, J. Banhart, L. Röntzsch, *In operando stress measurement and neutron imaging of metal hydride composites for solid-state hydrogen storage*, *Journal of Power Sources*, vol. 397, pp. 262–270 (2018).
DOI: [10.1016/j.jpowsour.2018.06.093](https://doi.org/10.1016/j.jpowsour.2018.06.093)
- [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*, *International Journal of Hydrogen Energy*, vol. 43, pp. 7216–7226 (2018).
DOI: [10.1016/j.ijhydene.2018.02.130](https://doi.org/10.1016/j.ijhydene.2018.02.130)
- [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).
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- [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).
DOI: [10.1016/j.ijhydene.2018.02.130](https://doi.org/10.1016/j.ijhydene.2018.02.130)
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DOI: [10.1016/j.jallcom.2017.02.113](https://doi.org/10.1016/j.jallcom.2017.02.113)
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DOI: [10.1007/978-3-662-52889-1](https://doi.org/10.1007/978-3-662-52889-1)
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DOI: [10.1109/estc.2016.7764494](https://doi.org/10.1109/estc.2016.7764494)
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- [39] J. Fu, M. Tegel, B. Kieback, L. Röntzsch, *Dehydrogenation properties of doped LiAlH₄ compacts for hydrogen generator applications*, International Journal of Hydrogen Energy, vol. 39, pp. 16362–16371 (2014).
DOI: [10.1016/j.ijhydene.2014.08.023](https://doi.org/10.1016/j.ijhydene.2014.08.023)
- [38] J. Gluch, S. Niese, L. Röntzsch, E. Zschech, *X-ray microscopy and tomography of hydrogen storage materials*, Microscopy and Microanalysis, vol. 20, suppl. 3, pp. 1568–1569 (2014).
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DOI: [10.1016/j.ijhydene.2014.03.151](https://doi.org/10.1016/j.ijhydene.2014.03.151)
- [36] C. Pohlmann, B. Kieback, L. Röntzsch, *Composite materials of melt-spun Mg₉₀Ni₁₀ and graphite: Microstructural changes during cyclic hydrogenation and the impact on gas and heat transport characteristics*, International Journal of Hydrogen Energy, vol. 39, pp. 8331–8339 (2014).
DOI: [10.1016/j.ijhydene.2014.03.163](https://doi.org/10.1016/j.ijhydene.2014.03.163)
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