

Curriculum Vitae

Professor Dr. Lars Röntzsch

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h-index: 25 [as of 2025-04-25]
Research
Interest Score: 1165 [as of 2025-04-25]



Employment History

From 07/2022 Full Professor (W3), Chair of Thermal Energy Technology and Head of Hydrogen Research Center at Brandenburg University of Technology BTU in Cottbus, Germany
From 01/2025 Vice Dean International Affairs of Faculty 3 Mechanical Engineering, Electrical and Energy Systems at BTU
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.

Teaching

Responsibility for the following modules and lectures for various Bachelor's and Master's programs at BTU:

<i>Title</i>	<i>No.</i>	<i>Description</i>
Renewable Energy Technologies for Power Supply	12165	Description
Energiewandlung (in German)	12294	Description
Gasversorgung (in German)	12985	Description
Hydrogen and Fuel Cells	13926	Description
Data Analytics and Process Modelling	14414	Description
Research Seminar and Ring Laboratory for Energy Technology	35317	Description
Kraftwerkstechnik 1 (in German)	35320	Description
Planung, Bau und Instandhaltung von Energieversorgungsanlagen (in German)	35321	Description
Technik und Nutzung regenerativer Energiequellen (in German)	35322	Description
Power Plant Technology 1	35449	Description
Power Plant Technology 2	35450	Description

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, thermochemical heat storage, renewable fuels, e-fuels, materials science, electrochemistry, 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

- [79] S. Jana, L. Röntzsch, *Numerical modelling and performance projection of a dual-stage metal hydride operated hydrogen compressor*, submitted (2025).
- [78] N. P. Sakkas, F. Gillung, K. Thummar, R. Abang, L. Röntzsch, *Advanced pressurized alkaline water electrolysis at high temperatures up to 130 °C*, submitted (2025).
- [77] K. Danila, P. Kunz, L. Röntzsch, *Dynamic operation of low-temperature electrolyzer systems in modular large-scale chemical plants*, Chemie Ingenieur Technik, in print (2025).
DOI: [10.1002/cite.202400140](https://doi.org/10.1002/cite.202400140)
- [76] S. Jana, P. Muthukumar, L. Röntzsch, *Transient analysis and performance prediction of metal hydride based thermal energy storage system with integrated cooling and heat recuperation*, submitted (2024).
- [75] A. Reimann, P. Kohlenbach, L. Röntzsch, C. Schneider, *Development and validation of a quasi-2D electrolysis stack model with a focus on dynamic thermal behavior*, International Journal of Hydrogen Energy, vol. 118, pp. 457–471 (2025).
DOI: [10.1016/j.ijhydene.2025.03.225](https://doi.org/10.1016/j.ijhydene.2025.03.225)
- [74] P. Sharma, L. Röntzsch, V. K. Shahia, *Advancements towards optimization of metal–organic framework-based polymer electrolyte membranes for aqueous redox flow batteries*, Journal of Materials Chemistry A (2025).
DOI: [10.1039/D4TA08720H](https://doi.org/10.1039/D4TA08720H)
- [73] S. K. Sampangi, L. Röntzsch, *Electrolysis – Proton exchange membrane water electrolysis: State-of-the-art technique and systems*, in J. Reedijk (Ed.) *Reference Module in Chemistry, Molecular Sciences and Chemical Engineering*, ISBN 978-0-12-409547-2, Elsevier, 2024.
DOI: [10.1016/B978-0-323-96022-9.00237-1](https://doi.org/10.1016/B978-0-323-96022-9.00237-1)
- [72] A. Reimann, P. Kohlenbach, L. Röntzsch, *Development of a novel quasi-2D PEM Electrolyzer Model in Modelica*, Proceedings of the 15th International Modelica Conference, Aachen, 9-11 October 2023, Linköping University Electronic Press, 2023.
DOI: [10.3384/ecp20463](https://doi.org/10.3384/ecp20463)
- [71] 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, *Producing hydrogen through electrolysis and other processes*, in R. Neugebauer (Ed.): *Hydrogen Technologies*, Berlin, Springer Vieweg, 2023, ISBN 9783031162961.
DOI: [10.1007/978-3-031-22100-2_9](https://doi.org/10.1007/978-3-031-22100-2_9)
- [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/Nano-engineering*, 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)
- [58] M. Đurovič, J. Hnát, C. I. Müller, T. Rauscher, L. Röntzsch, M. Paidar, K. Bouzek, *Nanocrystalline Fe₆₀Co₂₀Si₁₀B₁₀ as a cathode catalyst for alkaline water electrolysis: Impact of a surface activation*, *Electrochimica Acta*, vol. 306, pp. 688–697 (2019).
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).
DOI: [10.1016/j.electacta.2017.07.074](https://doi.org/10.1016/j.electacta.2017.07.074)
- [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.2017.02.006](https://doi.org/10.1016/j.ijhydene.2017.02.006)
- [51] F. Heubner, S. Mauermann, B. Kieback, L. Röntzsch, *Stress development of metal hydride composites for high density hydrogen storage applications*, Journal of Alloys and Compounds, vol. 705, pp. 176–182 (2017).
DOI: [10.1016/j.jallcom.2017.02.113](https://doi.org/10.1016/j.jallcom.2017.02.113)
- [50] M. Tegel, S. Schöne, B. Kieback, L. Röntzsch, *An efficient hydrolysis of MgH₂-based materials*, International Journal of Hydrogen Energy, vol. 42, pp. 2167–2176 (2017).
DOI: [10.1016/j.ijhydene.2016.09.084](https://doi.org/10.1016/j.ijhydene.2016.09.084)
- [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).
DOI: [10.1016/j.jpowsour.2016.12.108](https://doi.org/10.1016/j.jpowsour.2016.12.108)
- [48] C. Cremers, L. Röntzsch, *Brennstoffzellen als Range-Extender*, pp. 85–89, in R. Neugebauer (Ed.): *Ressourceneffizienz*, Springer Vieweg, Berlin, 2017, ISBN 9783662528884.
DOI: [10.1007/978-3-662-52889-1](https://doi.org/10.1007/978-3-662-52889-1)
- [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](https://doi.org/10.1109/estc.2016.7764494)
- [46] M. Tegel, L. Röntzsch, *PowerPaste für mobile und autarke Brennstoffzellen*, HZwei (ISSN: 1862-393X), 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).
DOI: [10.1016/j.ijhydene.2015.12.132](https://doi.org/10.1016/j.ijhydene.2015.12.132)
- [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).
DOI: [10.1016/j.jpowsour.2015.11.008](https://doi.org/10.1016/j.jpowsour.2015.11.008)
- [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).
DOI: [10.1016/j.ijhydene.2015.09.013](https://doi.org/10.1016/j.ijhydene.2015.09.013)
- [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).
DOI: [10.1016/j.ijhydene.2015.06.053](https://doi.org/10.1016/j.ijhydene.2015.06.053)
- [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).
DOI: [10.1016/j.jpowsour.2015.05.039](https://doi.org/10.1016/j.jpowsour.2015.05.039)

- [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).
DOI: [10.1016/j.jpowsour.2014.12.011](https://doi.org/10.1016/j.jpowsour.2014.12.011)
- [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).
DOI: [10.1017/s143192761400957x](https://doi.org/10.1017/s143192761400957x)
- [37] C. I. Müller, T. Rauscher, A. Schmidt, T. Schubert, T. Weißgärber, B. Kieback, L. Röntzsch, *Electrochemical investigations on amorphous Fe-base alloys for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 39, pp. 8926–8937 (2014).
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)
- [35] J. Gluch, S. Niese, C. Jung, L. Röntzsch, E. Zschech, B. Kieback, *Electron and X-ray tomography of iron/iron oxide redox reactions for large-scale hydrogen storage*, Microscopy and Microanalysis, vol. 19, suppl. 2, pp. 578–579 (2013).
DOI: [10.1017/s1431927613004881](https://doi.org/10.1017/s1431927613004881)
- [34] K. Herbrig, L. Röntzsch, C. Pohlmann, T. Weißgärber, B. Kieback, *Hydrogen storage systems based on hydride-graphite composites: Computer simulation and experimental validation*, International Journal of Hydrogen Energy, vol. 38, pp. 7026–7036 (2013).
DOI: [10.1016/j.ijhydene.2013.03.104](https://doi.org/10.1016/j.ijhydene.2013.03.104)
- [33] C. Pohlmann, T. Hutsch, L. Röntzsch, T. Weißgärber, B. Kieback, *Novel approach for thermal diffusivity measurements in inert atmosphere using the flash-method*, Journal of Thermal Analysis and Calorimetry, vol. 114, pp. 629–634 (2013).
DOI: [10.1007/s10973-013-3048-9](https://doi.org/10.1007/s10973-013-3048-9)
- [32] C. Pohlmann, L. Röntzsch, F. Heubner, T. Weißgärber, B. Kieback, *Solid-state hydrogen storage in Hydralloy-graphite composites*, Journal of Power Sources, vol. 231, pp. 97–105 (2013).
DOI: [10.1016/j.jpowsour.2012.12.044](https://doi.org/10.1016/j.jpowsour.2012.12.044)
- [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).
DOI: [10.1016/j.ijhydene.2012.09.159](https://doi.org/10.1016/j.ijhydene.2012.09.159)
- [30] A. Schmidt, T. Schubert, L. Röntzsch, T. Weißgärber, B. Kieback, *Rapidly solidified Fe-base alloys as electrode materials for water electrolysis*, International Journal of Materials Research, vol. 103, pp. 1155–1158 (2012).
DOI: [10.3139/146.110804](https://doi.org/10.3139/146.110804)
- [29] J. Fu, L. Röntzsch, T. Schmidt, M. Tegel, T. Weißgärber, B. Kieback, *Comparative study on the dehydrogenation properties of TiCl₄-doped LiAlH₄ using different doping techniques*, International Journal of Hydrogen Energy, vol. 37, pp. 13387–13392, (2012).
DOI: [10.1016/j.ijhydene.2012.06.009](https://doi.org/10.1016/j.ijhydene.2012.06.009)
- [28] M. E. Toimil-Molares, L. Röntzsch, W. Sigle, K. H. Heinig, C. Trautmann, R. Neumann, *Pipetting nanowires: In situ visualization of solid-state nanowire-to-nanoparticle transformation driven by surface diffusion-mediated capillarity*, Advanced Functional Materials, vol. 22, pp. 695–701 (2012).
DOI: [10.1002/adfm.201102260](https://doi.org/10.1002/adfm.201102260)

- [27] J. Fu, L. Röntzsch, T. Schmidt, T. Weißgärber, B. Kieback, *Improved dehydrogenation properties of lithium alanate (LiAlH₄) doped by low energy grinding*, Journal of Alloys and Compounds, vol. 525, pp. 73–77 (2012). DOI: [10.1016/j.jallcom.2012.02.076](https://doi.org/10.1016/j.jallcom.2012.02.076)
- [26] E. D. Kouloukous, S. S. Makridis, L. Röntzsch, E. Pavlidou, A. Ioannidou, E. S. Kikkinides, A. K. Stubos, *Structural, microchemistry, and hydrogenation properties of TiMn_{0.4}Fe_{0.2}V_{0.4}, TiMn_{0.1}Fe_{0.2}V_{0.7} and Ti_{0.4}Zr_{0.6}Mn_{0.4}Fe_{0.2}V_{0.4} metal hydrides*, Journal of Nanoscience and Nanotechnology, vol. 12, pp. 4688–4696 (2012). DOI: [10.1166/jnn.2012.4901](https://doi.org/10.1166/jnn.2012.4901)
- [25] C. Pohlmann, L. Röntzsch, J. J. Hu, T. Weißgärber, B. Kieback, M. Fichtner, *Tailored heat transfer characteristics of pelletized LiNH₂-MgH₂ and NaAlH₄ hydrogen storage materials*, Journal of Power Sources, vol. 205, pp. 173–179 (2012). DOI: [10.1016/j.jpowsour.2012.01.064](https://doi.org/10.1016/j.jpowsour.2012.01.064)
- [24] T. Schmidt, L. Röntzsch, T. Weißgärber, B. Kieback, *Influence of transition metal dopants and temperature on the dehydrogenation and rehydrogenation kinetics of NaAlH₄*, International Journal of Hydrogen Energy, vol. 37, pp. 4194–4200 (2012). DOI: [10.1016/j.ijhydene.2011.11.139](https://doi.org/10.1016/j.ijhydene.2011.11.139)
- [23] S. Kalinichenka, L. Röntzsch, T. Riedl, T. Weißgärber, B. Kieback, *Hydrogen storage properties and microstructure of melt-spun Mg₉₀Ni₈RE₂ (RE = Y, Nd, Gd)*, International Journal of Hydrogen Energy, vol. 36, pp. 10808–10815 (2011). DOI: [10.1016/j.ijhydene.2011.05.147](https://doi.org/10.1016/j.ijhydene.2011.05.147)
- [22] S. Kalinichenka, L. Röntzsch, T. Riedl, T. Gemming, T. Weißgärber, B. Kieback, *Microstructure and hydrogen storage properties of melt-spun Mg-Cu-Ni-Y alloys*, International Journal of Hydrogen Energy, vol. 36, pp. 1592–1600 (2011). DOI: [10.1016/j.ijhydene.2010.10.099](https://doi.org/10.1016/j.ijhydene.2010.10.099)
- [21] C. Pohlmann, L. Röntzsch, S. Kalinichenka, T. Hutsch, T. Weißgärber, B. Kieback, *Hydrogen storage properties of compacts of melt-spun Mg₉₀Ni₁₀ flakes and expanded natural graphite*, Journal of Alloys and Compounds, vol. 509, pp. S625–S628 (2011). DOI: [10.1016/j.jallcom.2010.11.060](https://doi.org/10.1016/j.jallcom.2010.11.060)
- [20] S. Kalinichenka, L. Röntzsch, C. Baehtz, T. Weißgärber, B. Kieback, *Hydrogen desorption properties of melt-spun and hydrogenated Mg-based alloys using in situ synchrotron X-ray diffraction and TGA*, Journal of Alloys and Compounds, vol. 509, pp. S629–S632 (2011). DOI: [10.1016/j.jallcom.2010.10.067](https://doi.org/10.1016/j.jallcom.2010.10.067)
- [19] T. Schmidt, L. Röntzsch, T. Weißgärber, B. Kieback, *Reversible hydrogen storage in Ti-Zr-codoped NaAlH₄ under realistic operation conditions: Part 2*, Journal of Alloys and Compounds, vol. 509, pp. S740–S742 (2011). DOI: [10.1016/j.jallcom.2010.10.183](https://doi.org/10.1016/j.jallcom.2010.10.183)
- [18] L. Röntzsch, T. Schmidt, S. Kalinichenka, B. Kieback, *Hydrogen storage in melt-spun nanocrystalline Mg-Ni-Y alloys*, pp. 159–163 in D. Stolten, T. Grube (Eds.): *18th World Hydrogen Energy Conference 2010 - WHEC 2010*, Parallel Sessions Book 4: Storage Systems / Policy Perspectives, Initiatives and Cooperations, Forschungszentrum Jülich, 2010, ISBN 9783893366545.
- [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). DOI: [10.1016/j.ijhydene.2010.08.104](https://doi.org/10.1016/j.ijhydene.2010.08.104)
- [16] T. Schmidt, L. Röntzsch, *Reversible hydrogen storage in Ti-Zr-codoped NaAlH₄ under realistic operation conditions*, Journal of Alloys and Compounds, vol. 496, pp. L38–L40 (2010). DOI: [10.1016/j.jallcom.2010.02.162](https://doi.org/10.1016/j.jallcom.2010.02.162)
- [15] S. Kalinichenka, L. Röntzsch, C. Baehtz, B. Kieback, *Hydrogen desorption kinetics of melt-spun and hydrogenated Mg₉₀Ni₁₀ and Mg₈₀Ni₁₀Y₁₀ using in situ synchrotron, X-ray diffraction and thermogravimetry*, Journal of Alloys and Compounds, vol. 496, pp. 608–613 (2010). DOI: [10.1016/j.jallcom.2010.02.128](https://doi.org/10.1016/j.jallcom.2010.02.128)

- [14] L. Röntzsch, T. Schmidt, S. Kalinichenka, C. Pohlmann, A. Schmidt, T. Weißgärber, B. Kieback, *Wasserstoffspeicherung in nanoskaligen Feststoffen*, pp. 41–56 in H. Kolaska (Ed.): *Energie- und Ressourceneffizienz durch Pulvermetallurgie*, Proceedings of the 28th Hagener Symposium, Heimdall-Verlag, Witten, 2009, ISBN 978939935391.
- [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 9783527327324.
- [12] T. Schmidt, L. Röntzsch, S. Kalinichenka, J. Meinert, B. Kieback, *Entwicklung reversibler Wasserstoffspeichersysteme auf Basis nanostrukturierter Metallhydride*, *Chemie Ingenieur Technik*, vol. 81, p. 1136 (2009).
DOI: [10.1002/cite.200950012](https://doi.org/10.1002/cite.200950012)
- [11] S. Kalinichenka, L. Röntzsch, B. Kieback, *Structural and hydrogen storage properties of melt-spun Mg-Ni-Y alloys*, *International Journal of Hydrogen Energy*, vol. 34, pp. 7749–7755 (2009).
DOI: [10.1016/j.ijhydene.2009.07.053](https://doi.org/10.1016/j.ijhydene.2009.07.053)
- [10] L. Röntzsch, *Shape evolution of nanostructures by thermal and ion beam processing*, *Wissenschaftlich-technische Berichte des Forschungszentrums Dresden-Rossendorf*, FZR-488, 2008, 176 pages.
Online: [urn:nbn:de:bsz:14-ds-1199973604526-36322](https://nbn-resolving.org/urn:nbn:de:bsz:14-ds-1199973604526-36322)
- [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).
DOI: [10.1063/1.2432282](https://doi.org/10.1063/1.2432282)
- [8] B. Schmidt, K. H. Heinig, L. Röntzsch, K. H. Stegemann, *Nanocluster memories by ion beam synthesis of Si in SiO₂*, *Materials Science-Poland*, vol. 25, pp. 1213–1222 (2007).
Online: materialscience.pwr.wroc.pl/bi/vol25no4/articles/ms_29_2007_155schm.pdf
- [7] B. Schmidt, A. Mücklich, L. Röntzsch, K. H. Heinig, *How do high energy heavy ions shape Ge nanoparticles embedded in SiO₂?*, *Nuclear Instruments and Methods in Physics Research B*, vol. 257, pp. 30–32 (2007).
DOI: [10.1016/j.nimb.2006.12.152](https://doi.org/10.1016/j.nimb.2006.12.152)
- [6] L. Röntzsch, K. H. Heinig, B. Schmidt, A. Mücklich, *Experimental evidence of Si nanocluster δ -layer formation in the vicinity of ion-irradiated SiO₂-Si interfaces*, *Nuclear Instruments and Methods in Physics Research B*, vol. 242, pp. 149–151 (2006).
DOI: [10.1016/j.nimb.2005.08.012](https://doi.org/10.1016/j.nimb.2005.08.012)
- [5] B. Schmidt, K. H. Heinig, L. Röntzsch, T. Müller, K. H. Stegemann, E. Votintseva, *Ion irradiation through SiO₂/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).
DOI: [10.1016/j.nimb.2005.08.011](https://doi.org/10.1016/j.nimb.2005.08.011)
- [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/SiO₂ interfaces*, *physica status solidi A*, vol. 202, pp. R170–R172 (2005).
DOI: [10.1002/pssa.200521399](https://doi.org/10.1002/pssa.200521399)
- [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 9637371184.
- [2] L. Röntzsch, K. H. Heinig, B. Schmidt, *Experimental evidence of Si nanocluster δ -layer formation in buried and thin SiO₂ films induced by ion irradiation*, *Materials Science in Semiconductor Processing*, vol. 7, pp. 357–362 (2004).
DOI: [10.1016/j.mssp.2004.09.098](https://doi.org/10.1016/j.mssp.2004.09.098)
- [1] L. Röntzsch, *Self-organization of nanocluster delta-layers at ion-beam-mixed Si-SiO₂ interfaces*, *Wissenschaftlich-technische Berichte des Forschungszentrums Rossendorf*, FZR-392, 2003, 91 pages.
Online: [urn:nbn:de:bsz:d120-qucosa-29001](https://nbn-resolving.org/urn:nbn:de:bsz:d120-qucosa-29001)

List of Patents

- [14] C. I. Bernäcker, T. Büttner, G. Walther, L. Röntzsch, T. Rauscher, S. Loos, N. Eissmann, A. Tillmann, S. Eckstein, S. Amthor, N. Minar, Metallkörper sowie Verfahren zum Herstellen des Metallkörpers, DE102022214303 (A1), WO2024133737 (A1), 2024.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102022214303A1>
- [13] S. Ziesche, A. Goldberg, L. Röntzsch, M. Vogt, Flexibles System zur Erzeugung elektrischer Energie, Vorrichtung zur Abgabe elektrischer Energie, Verfahren zur Herstellung des flexiblen Systems sowie Verwendungen hiervon, DE102020205970 (B3), EP4150691 (A1), WO2021228897 (A1), 2021.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102020205970B3>
- [12] L. Röntzsch, F. Heubner, Wasserstoffspeicherbehälter, DE102020204214 (B3), EP3889103 (A1), 2021.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102020204214B3>
- [11] L. Röntzsch, C. I. Bernäcker, System zur Bereitstellung und Abgabe von zumindest nahezu reinem Sauerstoff, DE102020205213 (A1), 2021.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102020205213A1>
- [10] C. I. Bernäcker, L. Röntzsch, Vorrichtung zur elektrochemischen Separation von Sauerstoff und/oder zur Erhöhung des Sauerstoffpartialdrucks in einem Gasgemisch, DE102020207427 (A1), 2021.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102020207427A1>
- [9] C. I. Bernäcker, L. Röntzsch, S. Loos, T. Rauscher, S. Mauermann, J. Scholz, T. Büttner, L. Hofmann, M. Ostafin, Verfahren zur Herstellung einer Metallsubstrat-Katalysator-Einheit sowie deren Verwendung, DE102020204747 (A1), 2021.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102020204747A1>
- [8] C. I. Bernäcker, L. Röntzsch, S. Loos, S. Scheitz, O. Kunze, T. Rauscher, Verfahren zur Ausbildung einer katalytisch wirksamen Schicht auf einer Oberfläche einer Membran, die Bestandteil einer Elektroden-Membran-Einheit einer elektrochemischen Zelle ist, DE102020208003 (A1), 2021.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102020208003A1>
- [7] L. Röntzsch, B. Kieback, M. Dieterich, I. Bürger, C. Pohlmann, Speicherelement für Gase, DE102015213061 (A1), EP3118511 (A1), EP3118511 (B1), 2017.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102015213061A1>
- [6] M. Tegel, L. Röntzsch, B. Kieback, Kompositmaterial zur hydrolytischen Erzeugung von Wasserstoff, Vorrichtung zur hydrolytischen Erzeugung von Wasserstoff, Verfahren zur Erzeugung von Wasserstoff, Vorrichtung zur Erzeugung von elektrischer Energie sowie Verwendungsmöglichkeiten, DE102014211422 (A1), EP3154900 (A1), EP3154900 (B1), ES2717532 (T3), US10239753 (B2), US2017107101 (A1), WO2015189247 (A1), 2015.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102014211422A1>
- [5] C. Pohlmann, L. Röntzsch, B. Kieback, H. Felix, Messeinrichtung und Verfahren zur Bestimmung der Menge eines in einem Speicher aufgenommenen Gases an einem porösen Speichermaterial, DE102015100584 (B3), EP3045910 (A1), EP3045910 (B1), ES2776379 (T3), 2015.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102015100584B3>
- [4] M. Tegel, L. Röntzsch, T. Weißgärber, B. Kieback, Verfahren zur Wiedergewinnung von Neodym oder Neodymoxid aus einem Ausgangsgemisch, DE102012017418 (A1), DE102012017418 (B4), WO2014033004 (A1), 2014.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102012017418A1>
- [3] M. Tegel, L. Röntzsch, B. Kieback, Kompositmaterial, Vorrichtung sowie Verfahren zur hydrolytischen Erzeugung von Wasserstoff sowie Vorrichtung zur Erzeugung von elektrischer Energie und Verwendungsmöglichkeiten, DE102013211106 (A1), EP3008012 (A1), EP3008012 (B1), ES2909103 (T3), WO2014198948 (A1), 2014.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102013211106A1>

- [2] T. Schmidt, L. Röntzsch, Verfahren zur Freisetzung von Wasserstoff aus einem Metallhydrid, DE102011115073 (A1), 2013.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102011115073A1>
- [1] G. Stephani, L. Röntzsch, B. Kieback, J. Kunze, W. Hungerbach, Reversibles Wasserstoffspeicherelement und Verfahren zu seiner Befüllung und Entleerung, DE102007038779 (A1), DE102007038779 (B4), WO2009018821 (A2), WO2009018821 (A3), 2009.
Online: <https://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=DE&NR=102007038779A1>