

Curriculum vitae

Personal information:

Name: Nasdala, Lutz Johannes
Date of birth: 15/01/1964
Place of birth: Wittichenau, Germany
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Contact information:

Institut für Mineralogie und Kristallographie
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Education:

- Habilitation (Mineralogy): "Metamictization of zircon". Institut für Geowissenschaften, Johannes Gutenberg-Universität Mainz, Germany, 2001. Horst Böhm, Thesis Advisor
- Dr. rer. nat. (Mineralogy): "Ramanspektroskopische Untersuchungen an ausgewählten Mineralen". Institut für Theoretische Physik, TU Bergakademie Freiberg, Germany, 1993. Jochen Monecke, Thesis Advisor
- Diploma (Mineralogy): "Ramanspektroskopische Untersuchungen an Glimmern". Institut für Mineralogie, Bergakademie Freiberg, 1990. Dieter Wolf, Thesis Advisor

Professional positions:

- Professor of Mineralogy and Spectroscopy: Institut für Mineralogie und Kristallographie, Universität Wien, Austria; 07/2009 – present
- Professor of Mineral Spectroscopy (Marie Curie Chair of Excellence): Institut für Mineralogie und Kristallographie, Universität Wien, Austria; 04/2006 – 06/2009
- Professor of Mineralogy (C2/W2; replacement of C3): Institut für Geowissenschaften, Johannes Gutenberg-Universität Mainz, Germany; 04/2002 – 03/2006
- Researcher and Lecturer: Institut für Geowissenschaften, Johannes Gutenberg-Universität Mainz, Germany, and GeoForschungsZentrum, Potsdam, Germany; 06/2001 – 03/2002
- Guest Professor: Institut für Mineralogie und Kristallographie, Universität Wien, Austria; 03/2001 – 05/2001
- Postdoctoral Appointee: School of Applied Geology, Curtin University of Technology, Perth, Western Australia; 03/1998 – 06/1998 and 09/1999 – 11/1999
- Postdoctoral Appointee (Habilitation): Institut für Geowissenschaften, Johannes Gutenberg-Universität Mainz, Germany; 03/1998 – 02/2001
- Postdoctoral Appointee: Institut für Mineralogie und Kristallographie, Universität Wien, Austria; 10/1996 – 02/1997

- Postdoctoral Appointee: School of Applied Geology, Curtin University of Technology, Perth, Western Australia; 01/1996 – 05/1996
- Postdoctoral Appointee: Institut für Theoretische Physik, TU Bergakademie Freiberg, Germany; 08/1995 – 02/1998
- Postdoctoral Appointee: School of Ocean and Earth Science and Technology, University of Hawai'i at Manoa, Honolulu, U.S.A.; 03/1994 – 08/1995
- Scientific Assistant and Researcher: Institut für Theoretische Physik, TU Bergakademie Freiberg, Germany; 09/1993 – 02/1994

Research areas:

[A more detailed description with illustrations is available at

<https://mineralogie.univie.ac.at/scistaff/lutz-nasdala/In-forschung/>]

- Radiation damage in U- and Th-bearing minerals
Effects of radiation damage on property changes; effects on Pb loss (U–Pb discordance); effects of on He diffusivity (thermochronology); potential of mineral-based ceramics in immobilising nuclear waste; understanding of why some minerals (zircon, allanite) may become aperiodic and others (monazite) not.
- Effects of corpuscular irradiation
Light- and heavy-ion irradiation experiments; quantification of irradiation effects (also in view of understanding natural radiation damage); depth profiles of irradiation-induced changes; effects of irradiation-created defect centres on colouration and/or luminescence.
- Application of spectroscopic in situ-analyses
Identification and characterisation (degree of damage, stress/strain) of phases on a μm -scale; potential applications of excitation spectroscopy in mineralogy.
- Application of imaging and mapping techniques
Unravelling internal textures of minerals and materials (growth, alteration, diffusion, etc.), especially of REE-bearing accessories; strain distribution patterns around inclusions in diamond.
- Gemstone analysis
Investigation of natural and synthetic gem materials, with particular focus on treatments. Most recently spectroscopic analysis of 172 gemstones in the Imperial Crown of the Holy Roman Empire; <https://www.projekt-reichskrone.at/>; <https://fgga.univie.ac.at/reichskrone/>.
- Well-characterised minerals as analytical references
Characterisation and proposal of gem-quality minerals (zircon, baddeleyite) as analytical references, especially for SIMS (secondary ion mass spectrometry) U–Pb geochronology.

Publication record:

- 167 articles and book chapters (81 first author, 86 co-author)
- 194 conference abstracts (69 first author, 125 co-author)
- Web of Science (Clarivate Analytics™): Hirsch index = 47
13121 total citations (as of 11 January 2024)
1302 citations p.a. in SCI publications (2020–2022)

Ten most important academic publications during the past ten years:

- Nasdala L, Lamers T, Gilg HA, Chanmuang N C, Griesser M, Kirchweger F, Erlacher A, Böhmler M, Giester G (2023) The Imperial Crown of the Holy Roman Empire, part I: Photoluminescence and Raman spectroscopic study of the gemstones. *J Gemmol* 38(5), 448–473. <https://doi.org/10.15506/JoG.2023.38.5.448>
- Ende M, Chanmuang N C, Reiners PW, Zamyatin DA, Gain SEM, Wirth R, Nasdala L (2021) Dry annealing of radiation-damaged zircon: Single-crystal X-ray and Raman spectroscopy study. *Lithos* 406-407:106523. <https://doi.org/10.1016/j.lithos.2021.106523>
- Nasdala L, Akhmadaliev S, Burakov BE, Chanmuang N C, Škoda R (2020) The absence of metamictisation in natural monazite. *Sci Rep* 10:14676. <https://doi.org/10.1038/s41598-020-71451-7>
- Nasdala L, Schmidt C (2020) Applications of Raman spectroscopy in mineralogy and geochemistry. *Elements* 16(2):99–104. <https://doi.org/10.2138/gselements.16.2.99>
- Ginster U, Reiners PW, Nasdala L, Chanmuang N C (2019) Annealing kinetics of radiation damage in zircon. *Geochim Cosmochim Acta* 249:225-246. <https://doi.org/10.1016/j.gca.2019.01.033>
- Nasdala L, Akhmadaliev S, Chanmuang N C, Zowalla A, Csato C, Rüb M (2019) ⁴He irradiation of zircon, ZrSiO₄, using a micro-patterned, Si-based energy filter. *Nucl Instrum Methods Phys Res B* 443:38-42. <https://doi.org/10.1016/j.nimb.2019.01.046>
- Nasdala L, Corfu F, Blaimauer D, Chanmuang C, Ruschel K, Škoda R, Wildner M, Wirth R, Zeug M, Zoysa EG (2017) Neoproterozoic amorphous "ekanite" (Ca₂Th_{0.9}U_{0.1}Si₈O₂₀) from Okkampitiya, Sri Lanka: A metamict gemstone with excellent lead-retention performance. *Geology* 45(10):919-922. <https://doi.org/10.1130/G39334.1>
- Lenz C, Nasdala L, Talla D, Seitz R, Hauzenberger C, Kolitsch U (2015) Laser-Induced REE³⁺ photoluminescence of selected accessory minerals - an "advantageous artefact" in Raman spectroscopy. *Chem Geol* 415:1-16. <https://doi.org/10.1016/j.chemgeo.2015.09.001>
- Pearson GD, Brenker FE, Nestola F, McNeill J, Nasdala L, Hutchison MT, Matveev S, Mather K, Silversmit G, Schmitz S, Vekemans B, Vincze L (2014) Hydrous mantle transition zone indicated by ringwoodite included within diamond. *Nature* 507(7491):221-224. <https://doi.org/10.1038/nature13080>
- Nasdala L, Kostrovitsky S, Kennedy AK, Zeug M, Esenkulova SA (2014) Retention of radiation damage in zircon xenocrysts from kimberlites, Northern Yakutia. *Lithos* 206-207(1):252-261. <https://doi.org/10.1016/j.lithos.2014.08.005>

Selected other achievements:

- Present position developed from Marie Curie Chair of Excellence (2006–2009; first mineralogy excellence chair in Europe ever)
- 2014–2015: Distinguished Lecturer of the Mineralogical Society of America
- 55 invited lectures / keynote lectures during the past ten years (2014–2023; the list is available at <https://mineralogie.univie.ac.at/scistaff/lutz-nasdala/#c951454>)
- Main lecturer of 10 invited spectroscopy workshops (of several days' duration each) during the past ten years (2014–2023; <https://mineralogie.univie.ac.at/scistaff/lutz-nasdala/#c951549>)