

FRANK DE GROOT

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Frank de Groot is professor of X-ray Spectroscopy in the Debye Institute of Nanomaterials Science at Utrecht University. His work reflects a concern with both the theoretical and the experimental aspects of X-ray spectroscopy, including both fundamental studies and applications. His current interest is in the use of X-ray spectroscopies for the study of the electronic and magnetic structure of quantum materials as well as energy materials, in particular transition metal oxides.

Education

- 1982-1987 – Radboud University Nijmegen, Master degree in Chemistry, main topic: Theoretical Chemistry.
- 1987-1991 – Radboud University Nijmegen, PhD degree (cum laude, top 5%) in solid state chemistry, thesis X-ray absorption of transition metal oxides.

Experience

- 1993- 1995 - Post-doctoral position (EU grant) at LURE CNRS Orsay, France; Title of the grant: Core level spectroscopies of magnetic materials.
- 1995-1998 – Researcher (Academy grant) at the department of solid state physics, University of Groningen in the group of Prof. George Sawatzky; Title of the grant: New synchrotron spectroscopies for research on transition metal systems
- Since 1999 – Assistant, associate and full professor in the department of chemistry at Utrecht University: Chair (since 2009): X-ray Spectroscopy

Research Interests

- X-ray spectroscopy, Electronic structure theory, Energy materials, Quantum materials

Publications: 390 publications with more than 37000 citations, h-index 92 (cf google scholar)

Personal grants

- 2001: NWO VIDI grant (€ 700.000) The local electronic structure of 3d transition metal ions in solids.
- 2006 NWO VICI grant (€ 1.250.000) In-situ X-ray spectromicroscopy of nanoparticle-adsorbate interactions
- 2014 ERC advanced grant ((€ 2.500.000) An X-ray view on active sites in cobalt oxide catalysts

Prizes

2009: Edward Stern Outstanding Achievement Award, the highest award of the IXAS that is given every three years for outstanding accomplishments across all X-ray absorption spectroscopy disciplinary areas. The award recognizes the fundamental contributions of Frank de Groot to the theory of X-ray spectroscopy.

Lectures at meetings and institutes

More than 300 lectures, from which more than 100 at international conferences.

Organization of conferences

15 conferences and workshops have been (co)-organized, including a series of workshops on the theory of x-ray spectroscopy, with the goal to increase the interaction between theory and experiment and also between chemistry and physics (2008, 2010, 2013, 2017).

Tasks at Utrecht University (selection):

- Exam Committee chemistry (chair) (2013-*)
- Board chemistry department (2010-2013)
- Education Advice Committee Chemistry (2021-2024)
- Faculty Library Committee (2012-*)

International committees (selection):

- Science Advisory Committee (SAC) Helmholtz Zentrum Berlin, Germany (2020-*)
- Photon Science Advisory Committee (SAC) at SLS, Switzerland (2013-2017)
- Science Advisory Committee (SAC) at Diamond, UK (2009-2012)
- ESRF council; representative for the Netherlands, Grenoble, France (2022-2024)
- Beamtime Committee at the LCLS x-ray free electron laser at Stanford (2011-2014, 2022-*), European X-FEL, Hamburg (2017-2023), BESSY, Berlin (2009-2012 and 2015-2018, 2019-2023), ESRF, Grenoble (2004-2006, 2016-2018, 2023-*), Swiss Light Source (SLS), (2008-2012), LURE, Orsay, France (2001-2002).

Supervision of PhD students

24 students have been supervised as (co)-promotor (1999-*)

Teaching at Utrecht University

Courses on quantum chemistry, spectroscopy, density functional theory, inorganic chemistry, condensed matter, nanoscience and catalysis (1999-*)

International teaching

- Basics of Core Level Spectroscopy at ICTP, Trieste, (1991-2010, every 2 years)
- Contribution to the Quanta workshop, Heidelberg (2018-*)
- Fundamentals of x-ray absorption and x-ray spectroscopy workshops and courses (since 2000) at UC Davis, ALS Berkeley (4x), BESSY Berlin, PSI Switzerland, Nagoya Japan, NSLS Brookhaven (2x), SLAC Stanford (3x), NRSSC, Hsinchu, Taiwan (2x), ALBA, Barcelona, Spain, SPRING8, Himeji, Japan, SOLEIL, France, SSSL, Shanghai, China, Chiang Mai Thailand, Diamond UK, TU Darmstadt Germany, Australian synchrotron, Melbourne, Australia, MIT, Boston, USA; 2025 scheduled for ALS, Berkeley and Beijing, China.