

Dr. Nadine Hauptmann – Curriculum Vitae

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Research summary

Nadine Hauptmann's research focus is to understand the atomic-scale electronic and magnetic properties of novel quantum phases in low-dimensional materials. She uses a combination of several high-resolution scanning probe techniques to probe localized charges and spins at the surface of low-dimensional materials including insulating material phases. Her research is divided into two main topics:

- Atomic-scale magnetism in thin magnetic layers and of individual atoms. The goal is to rationalize ways of how to probe and controllably manipulate atomic-scale magnetic moments using force-based detection methods. (Hauptmann *et al.*, Nat. Commun. 11, 1197 (2020)).
- Correlated ground states in 2D materials. The goal is to understand the electron-electron interaction and their role to the formation of correlated ground states by quantifying atomic-scale charges, spins and structural disorder as well as their interplay (arXiv:2407.17231).

Employment History (post-graduate)

- 2022 – today Assistant professor (tenured): SPM department,
IMM, Radboud University, Nijmegen, The Netherlands.
- 2019 – 2022 Assistant professor (tenure track): SPM department,
IMM, Radboud University, Nijmegen, The Netherlands.
- 2014 – 2019 Postdoctoral researcher, group of Prof. Alexander A. Khajetoorians,
IMM, Radboud University, Nijmegen, Netherlands.
- 2013 – 2014 Postdoctoral researcher, group of Prof. Richard Berndt,
Institute for Experimental and Applied Physics (IEAP), CAU Kiel, Germany.

Education

- 2013 PhD in Physics, Faculty of Mathematics and Natural Sciences, CAU Kiel, Germany;
Supervisor: Prof. Richard Berndt; Grade: *Summa cum laude*.
- 2008 Diplom in Physics (corresponds to MSc), Faculty of Mathematics and Natural
Sciences, CAU Kiel, Germany.

Project funding

- 2023 – today NWO ENW-M1 grant, (360k€).
- 2021 – today ERC Starting grant, European Union's Horizon 2020 research and innovation
programme, (grant agreement No. 947717); (1,900k€).
- 2018 –2019 NWO Physics/f grant + IMM commitment; (75k€).

2015 – 2016 Feodor Lynen Research Fellowship of the Alexander von Humboldt Foundation, Germany; (37k€).

Awards and recognitions

2019 Finalist of the Ertl young investigator award (top 5).
2014 Kiel Nano-, Surface and Interface Sciences Award for nanophysics.
2013 Poster award of Wilhelm and Else Heraeus foundation (543. WE-Heraeus-Seminar).
2011 Poster award at the 15th International Conference on nc-AFM.
2008 Award for the best experimental diploma thesis, Christian-Albrechts-University Kiel, Germany.

Research Output

- 22 peer-reviewed publications, 574 citations according to Web of Science, h-index 12.
- 10 invited talks at international conferences, symposia and workshops.
- 27 invited talks at various universities and research institutes.

Conference and Symposium Organizations:

- Chair of the organizing committee for the 23th international conference on nc-AFM held in Nijmegen (2022).
- Focus session organizer: DPG meeting, Regensburg (2022).
- Focus session organizer: CMD29, Manchester (2022).
- Focus session organizer: NWO Physics@Veldhoven conference (2020).

Administrative/committee activities at Radboud University

Since 2024 IMM colloquium committee.
Since 2023 Member of the Physics and Astronomy OLC.
2023 IMM best PhD thesis committee.
2022 Guest editor, thematic issue in Beilstein Journal of Nanotechnology.
Since 2022 Member of the steering committee for the international conference on nc-AFM
Since 2022 Coordinator of the theme 3 PiPhys events for Phd/Post-docs
2018 – 2023 IMM theme 3 organizing committee.

Teaching

2019 – now Electronics (3 EC 2nd year Bachelor)
2022 – now Solid State Physics (6 EC 1st year Master)

Outreach Activities

2023 Video: A glimpse into quantum materials
(<https://www.youtube.com/watch?v=Ik2Qq2Z2BC8>)
2017 Presentations for High School students within the scope of “Saturday Morning Physics”, CAU Kiel, Germany, (also in the years: 2013, 2014)
2014 SFB 677 Video: Molecules as nanomachines? (<https://vimeo.com/87175015>)