Magdalena Kersting

Curriculum Vitae

Department of Science Education
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Research Experience

3/2022 - present **Tenure-track Assistant Professor of Science Education**, *Department of Science Education*, University of Copenhagen, Denmark

3/2020 - 2/2022 **Postdoctoral Researcher in Science Education**, *Department of Teacher Education and School Research*, University of Oslo, Norway, research project: Linking Instruction in Science and Student Impact (LISSI)

11/2019 **Visiting Research Fellow**, *Department of Engineering and Physics*, Karlstad University, Sweden, research project: Embodied cognition in science education
funded by the European Association for Research on Learning and Instruction (EARLI)

5-7/2019 **Visiting Research Fellow**, *Centre for Astrophysics & Supercomputing*, Swinburne University of Technology, Australia, research project: Virtual reality in astronomy education and public outreach
funded by the Research Council of Norway

8/2018-4/2019 **Visiting Research Fellow**, *School of Physics*, University of Western Australia & Gravity Discovery Centre, Australia, research project: Designing an astrophysics exhibition at the Gravity Discovery Centre
funded by the Research Council of Norway and the European Science Education Research Association (ESERA)

Education

9/2015–12/2019 **PhD in Physics Education**, *University of Oslo, Norway*
Thesis: General Relativity in Secondary School - Research-Based Development of Learning Resources and Analyses of Students' Conceptual Understanding Using the Model of Educational Reconstruction

6/2015–4/2018 **Diploma Public Relations Management**, *Freie Journalistenschule, Berlin, Germany*
Thesis: Communication at the crossroads of science and education

10/2012–3/2015 **Master of Science in Mathematics**, *University of Göttingen, Germany & University of Oslo, Norway*
Thesis: Exotic Crossed Products: Constructions and Open Questions

8/2014–3/2015 **Master's Research Project**, *University of Oslo, Norway*
funded by the German Academic Exchange Service

1–7/2013 **Exchange Semester**, *University of Oslo, Norway*
funded by the EuRopean Community Action Scheme for the Mobility of University Students (ERASMUS)

10/2009–8/2012 **Bachelor of Science in Mathematics**, *University of Göttingen, Germany*
Thesis: Konvexitätsätze in symplektischer Geometrie (Convexity theorems in symplectic geometry)

10/2008–8/2011 **Bachelor of Science in Physics**, *Max Planck Institute for Dynamics and Self-Organisation & University of Göttingen, Germany*
Thesis: Reconstruction of Correlation Networks

Professional Memberships

ESERA **European Science Education Research Association**

ASERA **Australasian Science Education Research Association**

GIREP **International Research Group on Physics Teaching**

EPS **European Physicsal Society**

Professional Activities

2022-present **ESERA SIG Coordinator**, *Coordinator of the Special Interest Group Language & Literacies in Science Education of the European Science Education Research Association (ESERA)*

2022-present **IMPRESS Coordinator**, *Coordinator of the International Modern Physics & Research in Education Seminar Series (IMPRESS)*

2018–present **Reviewer**, *Journals: Science & Education, Physical Review Physics Education Research, International Journal of Science Education, Astronomy Education Journal, Pedagogies: An International Journal*

1-11/2021 **Deputy Project Leader**, *Deputy project leader of project LISSI (Linking Instruction in Science and Student Impact)*, University of Oslo

2020-2022 **Working Group Leader**, *Co-leader of the Education and Evaluation Working Group of the International Gravity Outreach Group (IGrav)*

2020-2022 **News & Site Admin**, *News & site admin for the COSER research group (Challenges of Sustainability in Educational Research)*, University of Oslo

08/2021 **PhD opponent at NAFOL**, *The Norwegian National Research School in Teacher Education (NAFOL)*, PhD candidate: Leonie Isabelle Johann, Thesis: Facing educational challenges in molecular life sciences - A project to construct, and evaluate content for cell membrane teaching by considering students' and scientists' conceptions

7/2021 **PhD Mentor**, *Mentor for PhD students in science education at the annual summer school of the European Science Education Research Association (ESERA)*

3/2021 **Conference Session Chair**, *1st Electronic Conference on Universe ECU2021*, Session:Teaching Relativity and Modern Physics in General

2020–2021 **Participant at the Mentoring Programme for Female Postdocs**, *Gender Equality Coordination Group*, University of Oslo

2020–2021 **Postdoc Career Success Training**, *PostdocTraining Particiapnt*, University of Oslo

2016–2017 **Events Officer**, *Events officer for UiODoc, the interest organisation for PhD students and postdocs at the University of Oslo*

2016 **Conference Committee Member**, *International Workshop on the Teaching and Learning of Einsteinian Physics*, Gravity Discovery Centre, Gingin, Australia

Awards & Honours

2021 **New Philosopher Writers' Award**, *Winner of the New Philosopher Writers' Award XXX: Perception*, Winning piece: The interplay between nature and ourselves

2021 **Early Career Physics Communicator Commissioning Award**, *Institute of Physics*

2021 **New Philosopher Writers' Award**, *Runner-up for the New Philosopher Writers' Award XXXI: Space*, Runner-up piece: Spaces Without and Within

2021 **Young Leader in Physics**, *Invited participant at the American Physical Society's International Young Leaders Forum*

2020 **IAU PhD Prize**, *International Astronomical Union PhD Prize for outstanding scientific achievement*, Division: Education, Outreach and Heritage

2019 **Hartle Award for Best Oral Talk by a Student in Education & Public Outreach**, *GR22/Amaldi13 Conference in Valencia, Spain*, 22nd edition of the International Conference on General Relativity and Gravitation and the 13th edition of the Edoardo Amaldi Conference on Gravitational Waves

2019 **Best Oral Presentation of a Young Researcher in Physics Education**, *GIREP conference in Budapest, Hungary*, International Research Group on Physics Teaching

2017 **Winner of the Science on Stage National Competition in Norway**, Science on Stage in collaboration with the Norwegian Society of Graduate Technical and Scientific Professionals Tekna

2011 **Bachelor of Science in Physics with Distinction**, *Max Planck Institute for Dynamics and Self-Organisation & University of Göttingen*, Thesis: Reconstruction of Correlation Networks

Grants & Scholarships

2019 **Qualification Scholarship**, *awarded by the Science Studies Colloquium Norway*
Funding: 30.000 NOK for the research project "Einstein's Impact on Society"

2019 **Early Career Mentoring Grant**, *awarded by the European Association for Research on Learning and Instruction (EARLI)*
Funding: 2000 Euro to cover travel costs and accommodation during a research stay at Karlstad University

2018 **Personal Overseas Research Grant**, *awarded by the Norwegian Research Council*
Funding: 189.000 NOK to cover living expenses during research stays at the University of Western Australia and Swinburne University of Technology

2018 **Travel Grant**, *awarded by the European Science Education Research Association (ESERA)*
Funding: 1000 Euro to cover travel costs during a research stay at the University of Western Australia

2016 **Workshop Grant**, *awarded by the Norwegian Research Council*, joint application with the Research Section for Physics Education at the University of Oslo
Funding: 80.000 NOK to co-organise the International Workshop on the Teaching and Learning of Einsteinian Physics at Gravity Discovery Centre in Gingin, Australia

2014 **Promos Mobility Stipend**, *awarded by the German Academic Exchange Service*
Funding for a 7-months master's research project at the University of Oslo

Teaching Experience

Currently, I teach undergraduate and graduate courses in science education and science communication at the Department of Science Education at the University of Copenhagen.

2022-present **Undergraduate and Graduate Courses**, *Lecturer & Course Responsible*, Copenhagen, Denmark
- (Autumn 2022) NNDK20004U - The Experimental Empirical Sciences
- (Autumn 2022) NNDB19007U - Introduction to Science Communication

2020-2021 **Graduate Courses**, *Lecturer & Course Responsible*, Oslo, Norway
- (Spring 2022) NATDID4001 - Natural Sciences, Research & Schools
- (Spring 2021) NATDID4001 - Natural Sciences, Research & Schools
- (Autumn 2020) PPU3210 - Instruction & Learning Progression: Science Education

2016-2018 **Undergraduate and Graduate Courses**, *Teaching Assistant*, Oslo, Norway
- (Spring 2018) FYS4160 - General Relativity
- (Spring 2017) FYS4160 - General Relativity
- (Autumn 2016) FYS1120 - Electromagnetism

2014-2015 **Revision Courses**, *Lecturer* , Göttingen, Germany
- (4/2015) Multimedia Revision Course in Calculus
- (3/2014) Revision Course in Calculus

2010–2014 **Undergraduate Courses**, *Teaching Assistant*, Göttingen, Germany
- (Winter 2013/14) Calculus
- (Summer 2012) Complex Analysis
- (Winter 2011/12) Calculus
- (Summer 2011) Electrodynamics
- (Winter 2010/11) Calculus

2009-2013 **Freshmen Courses**, *Course Reader*, Göttingen, Germany
- (9/2013) Mathematics for Agricultural Science and Forestry Students
- (10/2010) Physics for Agricultural Science and Forestry Students
- (9/2010) Mathematics for Physics and Mathematics Students
- (10/2009) Physics for Agricultural Science Students

Teacher Professional Development Workshops

I regularly develop and lead teacher professional development workshops.

4/2021 Bro AOF & Fagforum for Realfag Agder (virtual workshop)

7/2020 International Physics & Astronomy Educator Program of the LIGO Scientific Collaboration (virtual workshop)

12/2018 Science Teacher Association of Western Australia (STAWA) Future Science, Perth, Australia

11/2018 University of Western Australia, Perth, Australia

6/2018 Sandefjord Highschool, Sandefjord (joint workshop with Ellen Henriksen), Norway

11/2017 University of Bergen, Bergen, Norway (joint workshop with Carl Angell)

10/2017 Bro Aschehoug, Oslo, Norway

Science Communication & Outreach Activities

8/2021 **Summer School Participant**, *Invited Participant at the International Summer School "Communicating Science"*, Wissenschaft im Dialog, the German organisation for science communication of the scientific community

2020–2021 **Podcast Contributor**, *Script writer and podcast guest for popular German physics podcast "Sag mal du als Physiker"*

2018–2019 **Science Blogger**, *Blogger for Titan, the science magazine of the Faculty of Mathematics and Natural Sciences at the University of Oslo*

2016-2018 **Judge in Norwegian Youth Science Contests**, *Contests "Hvorfor det?" & "Unge Forskere"*

2013–2016 **Editor in Chief**, *Editor in chief of student physics magazine "Detektor"*, German Physical Society

9-12/2012 **Science Journalism Intern**, *Intern with German physics portal "Welt der Physik"*, Hamburg, Germany

2009–2012 **Physics Blogger**, *Blogger for the physics learning platform of the University of Göttingen*

Selection of Invited Talks

11/2022 **Combining Design-Based Research and the Model of Educational Reconstruction in Astronomy Education**, *SHAW-IAU workshop 2023*, virtual talk

08/2022 **Einsteinsk fysikk i skolen**, *Landskonferansen om fysikkundervisning*, Trondheim, Norway

06/2022 **Round Table Discussion on Physics Education**, *EPS Forum*, Paris, France

10/2021 **On Four Different Senses of Embodiment in Science Education**, *Homi Bhabga Centre for Science Education*, virtual talk

06/2021 **Engaging the Public with Astrophysics Virtual Reality Experiences**, *IPTA Science Week*, the International Pulsar Timing Array, virtual talk

02/2020 **Impact in Einsteinian Physics Education**, *Inaugural Einstein-First International Workshop: Teaching Einsteinian Physics in Schools*, Perth, Australia (Key Note Talk)

11/2019 **Embodied Cognition in Science Education - Examples from Relativity**, *Karlstad University*, Karlstad, Sweden

11/2019 **Computer-Supported Collaborative Learning & Embodied Conceptions of Spacetime**, *Linköping University*, Norrköping, Sweden

7/2019 **Impact in Physics Education: the Transformational Power of Educational Research Collaborations**, *Institute of Physics*, London, UK

7/2019 **Bringing General Relativity to Secondary Schools: Design and Evaluation of a Digital Learning Environment**, *GR22-Amaldi13*, Valencia, Spain

2/2019 **Curved Spacetime: Investigating Students' Conceptual Understanding in General Relativity**, *WE-Heraeus Seminar*, Bad Honnef, Germany

12/2016 **General Relativity: Making Einstein's Theory Teachable**, *Future Science Conference*, Perth, Australia

Chaired Conference Symposia

07/2019 **Teaching and Learning of Einsteinian Physics**, *International Research Group on Physics Teaching (GIREP) Conference 2019*, Budapest, Hungary
Contributions from Norway, Australia, Israel, and Czech Republic

07/2018 **International Perspectives on Einsteinian Physics at the Upper Secondary School Level**, *International Research Group on Physics Teaching (GIREP) Conference 2018*, San Sebastian, Spain
Contributions from Norway, Australia, the Netherlands, and Czech Republic

07/2017 **The Teaching and Learning of Einsteinian Physics in International Contexts**, *International Research Group on Physics Teaching (GIREP) Conference 2017*, Dublin, Ireland
Contributions from Norway, Australia, and Germany

Selection of Conference Talks

11/2022 **The Physics Education Research Group at the University of Copenhagen**, *Annual meeting of the Danish Physical Society*, Nyborg, Denmark

06/2022 **On Four Senses of Embodiment in Science Education**, *ASERA 53*, Perth, Australia

10/2021 **IGrav: Engaging People Throughout the World in Exploring the Exciting Field of Gravitation**, *3rd Shaw-IAU workshop on Astronomy for Education*, virtual conference

9/2021 **The Four Different Senses of Embodiment in Science Education**, *ESERA2021*, virtual conference

7/2021 **Reflecting on Design Principles for Virtual Reality Experiences in Astronomy Education**, *Edoardo Amaldi Conference on Gravitational Waves*, virtual conference

5/2021 **Exploring participant engagement during an astrophysics virtual reality experience at a science festival**, *Communicating Astronomy with the Public 2021*, virtual conference

5/2021 **Learning Processes of Embodied Interaction with Disembodied Concepts**, *Speaking Bodies: Embodied Cognition at the Crossroads of Philosophy, Linguistics, Psychology and Artificial Intelligence*, virtual conference

11/2020 **Instructional Strategies to Foster Motivation for Einsteinian Physics Among Middle School Girls**, *International Research Group on Physics Teaching (GIREP) Conference 2020*, virtual conference

8/2020 **Learning Processes of Embodied Interaction with Disembodied Concepts in CSCL Environments**, *European Association of Research in Learning and Instruction (EARLI) SIG 6 & 7 conference*, virtual conference

7/2019 **Free Fall in Curved Spacetime - How to Visualize Gravity in General Relativity**, *International Research Group on Physics Teaching (GIREP) Conference 2019*, Budapest, Hungary

12/2018 **General Relativity in Upper Secondary School: Design and Evaluation of an Online Learning Environment**, *23rd Australian Institute of Physics Congress*, Perth, Australia

7/2018 **Navigating Four Dimensions - Upper Secondary Students' Understanding of Movement in Spacetime**, *International Research Group on Physics Teaching (GIREP) Conference 2018*, San Sebastian, Spain

7/2018 **How History and Philosophy of Science Can Inform Teaching and Learning of General Relativity in Upper Secondary School**, *15th Marcel Grossmann Meeting*, Rome, Italy

8/2017 **Gravity, Imagination, and Embodied Conceptions of Spacetime**, *European Science Education Research Association (ESERA) Conference 2017*, Dublin, Ireland

7/2017 **An International Research Collaboration in the Teaching and Learning of Einsteinian Physics**, *International Research Group on Physics Teaching (GIREP) Conference 2017*, Dublin, Ireland

Selection of Publications

Download full list of publications: `https://www.magdalenakersting.com/publications/`

1) **Kersting, M., Schrocker, G., Papantoniou, S. (2021)**, *'I loved exploring a new dimension of reality' - a case study of middle-school girls encountering Einsteinian physics in the classroom*, International Journal of Science Education
`https://doi.org/10.1080/09500693.2021.1950943`

2) **Kersting, M., Haglund, J., Steier, R. (2021)**, *A growing body of knowledge: On four different senses of embodiment in science education*, Science & Education
`https://doi.org/10.1007/s11191-021-00232-z`

3) **Woithe, J., Kersting, M. (2021)**, *Bend it like dark matter*, Physics Education, 56, 035011
`https://doi.org/10.1088/1361-6552/abe09c`

4) **Hughes, T., Kersting, M. (2021)**, *The invisibility of time dilation*, Physics Education, 56, 025011
`https://doi.org/10.1088/1361-6552/abce02`

5) **Kersting, M., Blair, D. (Eds) (2021)**, *Teaching Einsteinian Physics in Schools: An Essential Guide for Teachers in Training and Practice*, Routledge, ISBN 9781760877712
`https://bit.ly/3eRQnzR`

6) **Ødegaard, M., Kjærnsli, M., Kersting, M., (Eds) (2021)**, *Tettere på naturfag i klasserommet (Closer to science in the classroom)*, Fagbokforlaget, ISBN 9788245038439
`https://www.fagbokforlaget.no/Tettere-p-naturfag-i-klasserommet/I9788245038439`

7) **Kersting, M. (2021)**, *Eine didaktische Rekonstruktion der Allgemeinen Relativitätstheorie für den Oberstufenunterricht (An Educational Reconstruction of General Relativity for Secondary School Education)*, Astronomie und Raumfahrt
https://www.friedrich-verlag.de/shop/kosmologie-536184

8) **Kersting, M., Steier, R., Venville, G. (2020)**, *Exploring participant engagement during an astrophysics virtual reality experience at a science festival*, International Journal of Science Education, Part B
https://doi.org/10.1080/21548455.2020.1857458

9) **Kersting, M., Toellner, R., Blair, D., Burman, R. (2020)**, *Gravity and Warped Time - Clarifying Conceptual Confusions in General Relativity*, Physics Education, 55, 015023
https://doi.org/10.1088/1361-6552/AB56D7

10) **Choudhary, R., Kraus, U., Kersting, M., Zahn, C., Zadnik, M., Meagher, R., Blair, D. (2019)**, *Einsteinian Physics in the Classroom: Integrating Physical and Digital Learning Resources in the Context of an International Research Collaboration*, The Physics Educator, 1(4) 1950016
https://doi.org/10.1142/S2661339519500161

11) **Steier, R., Kersting, M. (2019)**, *Metaimagining and embodied conceptions of spacetime*, Cognition & Instruction, 37:2, 145-168
https://doi.org/10.1080/07370008.2019.1580711

12) **Steier, R., Kersting, M., Silseth, K. (2019)**, *Imagining with improvised representations in CSCL environments*, International Journal of Computer-Supported Collaborative Learning, 14:109
https://doi.org/10.1007/s11412-019-09295-1

13) **Kersting, M. (2019)**, *Free fall in curved spacetime - how to visualise gravity in general relativity*, Physics Education, 54,035008, 593–623
https://dx.doi.org/10.1088/1361-6552/ab08f5

14) **Kersting, M., Henriksen, E. K., Bøe, M. V., & Angell, C. (2018)**, *General relativity in upper secondary school: design and evaluation of an online learning environment using the model of educational reconstruction.*, Physical Review Physics Education Research, 14(1)), 010130-1-010130-18
http://doi.org/10.1103/PhysRevPhysEducRes.14.010130

15) **Kersting, M., Steier, R. (2018)**, *Understanding curved spacetime – the role of the rubber sheet analogy in learning general relativity*, Science & Education, 27(7–8), 593–623
https://doi.org/10.1007/s11191-018-9997-4