

Magdalena Kersting

Curriculum Vitae

Department of Teacher Education and School Research
University of Oslo
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Education

- 2015-2019 **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
- 2015-2018 **Diploma in Communication and Public Relations Management**, Freie Journalistenschule Berlin, Germany.
Thesis: Communication at the crossroads of science and education
- 2013-2015 **Master of Science in Mathematics**, University of Göttingen, Germany.
- 2009-2012 **Bachelor of Science in Mathematics**, University of Göttingen, Germany.
- 2008-2011 **Bachelor of Science in Physics**, University of Göttingen, Germany.

Research Stays Abroad

- 11/2019 **Visiting Researcher**, *Centre of Science, Mathematics and Engineering Education Research (SMEER)*, Karlstad University, Sweden.
Project: Embodied Cognition in Science Education
- 5/2019-
6/2019 **Visiting Research Fellow**, *ARC Centre of Excellence for Gravitational Wave Discovery*, Swinburne University of Technology, Melbourne, Australia.
Project: Virtual reality in science education and public outreach
- 8/2018-
4/2019 **Visiting Research Fellow**, *ARC Centre of Excellence for Gravitational Wave Discovery*, University of Western Australia, Perth, Australia.
Project: Combining digital and physical learning environments in a science exhibition

Honors, Scholarships & Awards

- 2019 **Hartle Award for Best Oral Talk by a Student, GR22/Amaldi13.**
- 2019 **Best Oral Presentation of a Young Researcher in Physics Education, GIREP 2019.**
- 2019 **Science Studies Colloquium Series Qualification Scholarship, Einstein's Impact on Society**, University of Oslo.

- 2019 **EARLI Mentoring Grant**, *Embodied Cognition in Physics Education*, University of Karlstad.
- 2018 **Norwegian Research Council personal overseas research grant**.
- 2018 **ESERA Travel Award**, *Students' Construction of the Time Concept in General Relativity*, University of Western Australia.
- 2016 **Norwegian Research Council workshop grant**, *joint application*, Gravity Discovery Centre, Western Australia.
- 2014 **DAAD Promos Mobility Stipend**, *University of Oslo*.
- 2011 **Bachelor of Science with Distinction**, *University of Göttingen*.

Professional Membership

- 2019-present **ISGRG**, International Society of General Relativity & Gravitation.
- 2018-present **ISLS**, International Society of the Learning Sciences.
- 2017-present **PESGB**, Philosophy of Education Society of Great Britain.
- 2016-present **EARLI**, European Association for Research on Learning and Instruction.
- 2015-present **ESERA**, European Science Education Research Association.

Professional Activities

- 2020-present **Co-Leader of iGrav Working Group**, *Co-Leader of the iGrav Formal Education and Evaluation Working Group*.
- 2019-present **Reviewer**, *Pedagogies: An International Journal*.
- 2019-present **Reviewer**, *Physical Review Physics Education Research*.
- 2018-present **Reviewer**, *Science and Education*.
- 2017 **Member of Local Organizing Committee**, *Conference: EuroDoc Open Science – Challenges and Opportunities for Early Career Researchers*, University of Oslo, Norway.
- 2016 **Member of International Scientific Committee**, *Conference: International Workshop on the Teaching and Learning of Einsteinian Physics*, Gravity Discovery Centre, Gin Gin, Australia.

Teaching Experience

- 2016-present **Undergraduate and Graduate Courses**, *Teaching Assistant*, Oslo, Norway.
 - (Spring 2018) FYS4160 - General Relativity
 - (Spring 2017) FYS4160 - General Relativity
 - (Autumn 2016) FYS1120 - Electromagnetism
- 2009–2015 **Undergraduate Courses in Maths and Physics**, *Teaching Assistant & Course Reader*, Göttingen, Germany.

Professional Development Workshops

2017-present **Teacher Professional Development Workshops**, *Workshop Leader*.

- (12/2018) STAWA Future Science, Perth, Australia
- (11/2018) University of Western Australia, Perth, Australia
- (6/2018) Sandefjord Highschool, Sandefjord, Norway
- (11/2017) University of Bergen, Bergen, Norway
- (10/2017) Bro Aschehoug Publishing House, Oslo, Norway

Languages

German	Native Speaker	English	Fluent
Norwegian	Fluent	French	Basic Working Knowledge

Publication List

Peer-Reviewed Research Articles & Conference Proceedings

- 1) **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>
- 2) **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>
- 3) **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>
- 4) **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>
- 5) **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>
- 6) **Kersting, M. (2019)**, *Navigating four dimensions – upper secondary students' understanding of movement in spacetime*, Journal of Physics: Conference Series, Volume 1287, Number 1.
<http://doi.org/10.1088/1742-6596/1287/1/012007>

- 7) **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>
- 8) **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>

Manuscripts In Press & Under Review

- 1) **Kersting, M. (in press)**, *How history and philosophy of science can inform teaching and learning of general relativity in upper secondary school*, *Proceedings of the Fifteenth Marcel Grossman Meeting on General Relativity*, World Scientific, Singapore.
- 2) **Kersting, M. (in press)**, *Visualizing Four Dimensions in Special and General Relativity*, *Handbook of the Mathematics of the Arts and Sciences*, Bharath Sriraman (Editor). Springer

Selection of Invited Talks & Conference Presentations

- 11/2019 **Örebro University, Örebro, Sweden**, Computer-supported collaborative learning & embodied conceptions of spacetime. (Invited Talk)
- 11/2019 **Karlstad University, Karlstad, Sweden**, Embodied Cognition in Science Education - Examples from Relativity. (Invited Talk)
- 11/2019 **Linköping University, Norrköping, Sweden**, Computer-supported collaborative learning & embodied conceptions of spacetime. (Invited Talk)
- 7/2019 **Institute of Physics, London, UK**, Impact in Physics Education: the Transformational Power of Educational Research Collaborations. (Invited Talk)
- 7/2019 **GR22-Amaldi13, Valencia, Spain**, Bringing general relativity to secondary schools: design and evaluation of a digital learning environment. (Invited Talk)

- 2/2019 **WE-Heraeus Seminar**, *Bad Honnef, Germany*, Curved Spacetime: Investigating Students' Conceptual Understanding in General Relativity.
(Invited Talk)
- 7/2018 **BWS 2018**, *London, UK*, The Role of Imagination in the Language Games of the Science Classroom.
(Oral Presentation)
- 6/2018 **2nd Symposium on Embodied Interaction: "Gesture, Touch, and Embodied Meaning-Making"**, *Odense, Denmark*, Gravity, imagination and embodied conceptions of spacetime.
(Oral Presentation)
- 8/2017 **JURE**, *Tampere, Finland*, Educational Reconstruction of General Relativity Through a Collaborative Online Learning Environment.
(Oral Presentation)
- 8/2017 **ESERA**, *Dublin, Ireland*, Gravity, Imagination, and Embodied Conceptions of Spacetime.
(Symposium Presentation)
- 12/2016 **Future Science Conference**, *Perth, Australia*, General Relativity: Making Einstein's Theory Teachable.
(Invited Talk)