

Magdalena Kersting

List of Publications

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Peer-Reviewed Papers

- 1) **Woithe, J., Kersting, M. (2021)**, *Bend it like dark matter*, *Physics Education*, 56, 035011.
<https://doi.org/10.1088/1361-6552/abe09c>
- 2) **Hughes, T., Kersting, M. (2021)**, *The invisibility of time dilation*, *Physics Education*, 56, 025011.
<https://doi.org/10.1088/1361-6552/abce02>
- 3) **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>
- 4) **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>
- 5) **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>
- 6) **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>
- 7) **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>
- 8) **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>

- 8) **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>
- 9) **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>
- 10) **Kersting, M. (in press)**, *Eine didaktische Rekonstruktion der Allgemeinen Relativitätstheorie für den Oberstufenunterricht*, *Astronomie und Raumfahrt*.
- 11) **Kersting, M., Haglund, J., Steier, R. (under review)**, *A growing body of knowledge: On the four different senses of embodiment in science education.*
- 12) **Kersting, M., Schrocker, G., Papantoniou, S. (under review)**, *'I loved exploring a new dimension of reality' - a case study of middle-school girls encountering Einsteinian physics in the classroom.*

Books & Book Chapters

- 1) **Kersting, M. (2020)**, *Visualizing Four Dimensions in Special and General Relativity*, *Handbook of the Mathematics of the Arts and Sciences*, Bharath Sriraman (Ed), Springer Nature, Cham.
https://doi.org/10.1007/978-3-319-70658-0_120-1
- 2) **Kersting, M., Blair, D. (Eds) (2021, forthcoming)**, *Teaching Einsteinian Physics in Schools: An Essential Guide for Teachers in Training and Practice*, Routledge, Singapore.
- 3) **Kersting, M. (in press)**, *Using the language of gravity to teach about space, time, and matter in general relativity*, *Teaching Einsteinian Physics in Schools*, Kersting, M., Blair, D. (Eds), Routledge (2021).
- 4) **Kersting, M. (in press)**, *Standing on the shoulders of giants – how historical perspectives on gravity can inform modern physics education*, *Teaching Einsteinian Physics in Schools*, Kersting, M., Blair, D. (Eds), Routledge (2021).
- 5) **Blair, D., Kersting, M. (in press)**, *The difficult birth of gravitational wave astronomy*, *Teaching Einsteinian Physics in Schools*, Kersting, M., Blair, D. (Eds), Routledge (2021).

Papers in Conference Proceedings

- 1) **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>
- 2) **Kamphorst, F., Kersting, M. (2019)**, *Design-Based Research and the Model of Educational Reconstruction - A Combined Approach to Design Successful Science Instruction*, In Levrini, O. & Tasquier, G. (Eds.) Electronic Proceedings of the ESERA 2019 Conference. The beauty and pleasure of understanding: engaging with contemporary challenges through science education, Part [18] (co-ed. [Kapon, S. & Ødegaard, M.]), (pp. [256]). Bologna: ALMA MATER STUDIORUM – University of Bologna. 978- 88-945874-0-1978-88-945874-0-1.
- 3) **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.

Scientific Reports

Ødegaard, M.; Kjærnsli, M.; Karlsen, S.; Kersting, M.; Lunde, M.L.S.; Olufsen, M. & Sæleset, J. (2021), *Tett på naturfag i klasserommet*, Linking Instruction in Science & Student Impact, Report for The Norwegian Directorate for Education and Training.

PhD Thesis

Kersting, M. (2019), *General Relativity in Secondary School - Research-Based Development of Learning Resources and Analyses of Students' Conceptual Understanding Using the Model of Educational Reconstruction*, Series of dissertations submitted to the The Faculty of Mathematics and Natural Sciences, University of Oslo , No. 2214 ISSN 1501-7710.

Selection of Outreach & Science Communication

- 1) **Kersting, M., Kube, J. (2019)**, *Ein erster Katalog kosmischer Kollisionen*, Einstein Online Band 11, 11-1001.
<https://www.einstein-online.info/spotlight/Ein-erster-Katalog-kosmischer-Kollisionen/>
- 2) **Kersting, M.(2019)**, *Meet the Scientist*, Wonk Magazine.
<https://www.wonkmagazine.co.uk/magdalena-kersting>
- 3) **Kersting, M. (2018)**, *Navigating Four Dimensions*, Lateral Magazine.
<http://www.lateralmag.com/articles/issue-27/navigating-four-dimensions>

- 4) **Kersting, M. (2018)**, *General Relativity – Why high school students should learn about Einstein's most revolutionary idea*, Titan Magazine.
<https://titan.uio.no/naturvitenskap-utdanning-english/2018/general-relativity-why-high-school-students-should-learn-about-einsteins-most-revolutionary-idea>