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Publication List

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Peer-Reviewed Journal Papers

- 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. (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>
- 6) **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>
- 7) **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>

- 8) **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>
- 9) **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>
- 10) **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>
- 11) **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>
- 12) **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>
- 13) **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>
- 14) **Kersting, M., Ruggiero, M.L. (under review)**, *Why can't you escape a black hole?* .
- 15) **Kersting, M., Bondell, J., Steier, R., Myers, M. (in preparation)**, *Extended reality in astronomy education: reflecting on design principles through a dialogue between researchers and practitioners.*

Books & Book Chapters

Books

- 1) **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>
- 2) **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-på-naturfag-i-klasserommet/I9788245038439>

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. (2021)**, *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 (Forthcoming).
- 3) **Kersting, M. (2021)**, *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 (Forthcoming).
- 4) **Blair, D., Kersting, M. (2021)**, *The difficult birth of gravitational wave astronomy*, Teaching Einsteinian Physics in Schools, Kersting, M., Blair, D. (Eds), Routledge (Forthcoming).
- 5) **Karlsen, S., Kersting, M., Ødegaard, M. (2021)**, *Kjennetegn på utforskende undervisning i naturfag (Characteristics of inquiry-based practices in science)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M. (Eds), Fagbokforlaget.
- 6) **Kersting, M., Karlsen, S., Ødegaard, M. (2021)**, *Ulike dilemmaer knyttet til utforskende undervisning i naturfag (Different dilemmas connected with inquiry-based practices in science)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M. (Eds), Fagbokforlaget.
- 7) **Ødegaard, M., Kersting, M. (2021)**, *Kjennetegn på undervisning som skårer høyt på kunnskap og læringsmiljø (Characteristics of high quality science teaching: knowledge and learning environments)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M. (Eds), Fagbokforlaget (Forthcoming).
- 8) **Kersting, M., Karlsen, S., Lunde, M.L.S. (2021)**, *Hvordan lykkes med integrasjon av nettbrett i praktiske forsøk? (How to successfully integrate tablets in practical science activities)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M. (Eds), Fagbokforlaget .
- 9) **Kersting, M., Ødegaard, M., Sæleset, J. (2021)**, *Hvordan fremme fantasi og kreativitet i naturfag? (How to foster imagination and creativity in science education)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M. (Eds), Fagbokforlaget .
- 10) **Ødegaard, M.; Kjærnsli, M.; Kersting, M. (2021)**, *En studie av kvalitet i naturfagundervisning (A study of quality in science education)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M. (Eds), Fagbokforlaget.

- 11) **Ødegaard, M., Kjærnsli, M., Kersting, M., Karlsen, S., Lunde, M.L.S., Olufsen, M., Sæleset, J. (2021)**, *Diskusjon: Tettere på naturfag i klasserommet (Discussion: Closer to science in the classroom)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M.; Karlsen, S.; Olufsen, M. (Eds), Fagbokforlaget.
- 12) **Lunde, M.L.S., Sæleset, J., Karlsen, S., Kjærnsli, M., Kersting, M., Olufsen, M., Ødegaard, M. (2021)**, *Hvordan vurdere undervisningskvalitet i naturfag (How to evaluate quality in science education)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M.; Karlsen, S.; Olufsen, M. (Eds), Fagbokforlaget.
- 13) **Lunde, M.L.S., Sæleset, J., Kjærnsli, M., Kersting, M., Karlsen, S., Olufsen, M., Ødegaard, M. (2021)**, *Forskningsdesign og metode (Research design and methodology)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M.; Karlsen, S.; Olufsen, M. (Eds), Fagbokforlaget.
- 14) **Karlsen, S., Kersting, M., Ødegaard, M. (2021)**, *Læreres tilrettelegging for faglig fordypning i naturfag (Teacher facilitation of content depth in science)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M.; Karlsen, S.; Olufsen, M. (Eds), Fagbokforlaget.
- 15) **Lunde, M.L.S., Karlsen, S., Kersting, M. (2021)**, *Hva kan vi forske på? Om å utvikle forskbare spørsmål i klasserommet (What can we find out? About developing research questions in the classroom)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M.; Karlsen, S.; Olufsen, M. (Eds), Fagbokforlaget.
- 16) **Karlsen, S., Kersting, M., Lunde, M.L.S. (2021)**, *Elevdeltakelse i et aldersblandet klasserom (Student engagement in a mixed-age classroom)*, Tettere på naturfag i klasserommet, Ødegaard, M., Kjærnsli, M., Kersting, M.; Karlsen, S.; Olufsen, M. (Eds), Fagbokforlaget.

Peer-Reviewed 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. 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 (Close to Science in the Classroom)*, Report for The Norwegian Directorate for Education and Training.

<https://www.udir.no/tall-og-forskning/finn-forskning/rapporter/klasseromstudier-i-naturfag/>

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.

<https://www.duo.uio.no/handle/10852/71817>

Science Communication & Public Outreach Pieces

- 1) **The interplay between nature and ourselves (2021)**, *Winning essay for philosophy magazine New Philosopher*.
<https://www.newphilosopher.com>
- 2) **Elever lærer mer i naturfag når de lager spørsmålene selv (Students learn science better if they get to formulate own questions) (2021)**, *Interview with Norwegian science platform Forskning.no*.
<https://forskning.no/barn-og-ungdom-partner-pedagogikk/elever-laerer-mer-i-naturfag-nar-de-lager-sporsmalene-selv/1835581>
- 3) **Ein erster Katalog kosmischer Kollisionen (A First Catalogue of Cosmic Collisions) (2019)**, *Popular scientific article for web portal "Einstein Online"*.
<https://www.einstein-online.info/spotlight/Ein-erster-Katalog-kosmischer-Kollisionen/>
- 4) **Meet the Scientist (2019)**, *Interview with Wonk Magazine*.
<https://www.wonkmagazine.co.uk/magdalena-kersting>
- 5) **Navigating Four Dimensions (2018)**, *Feature article for Australian science magazine Lateral*.
<http://www.lateralmag.com/articles/issue-27/navigating-four-dimensions>

- 6) **General Relativity – Why high school students should learn about Einstein's most revolutionary idea (2018)**, *Opinion piece for science magazine Titan*, National Geographic Education's "Read of the Week".
<https://titan.uio.no/naturvitenskap-utdanning-english/2018/general-relativity-why-high-school-students-should-learn-about-einsteins-most-revolutionary-idea>
- 7) **Har frisket opp Einstein for dagens skoleelver (Giving Einstein a boost for school students today) (2018)**, *Interview with science magazine Titan*.
<https://titan.uio.no/innovasjon-utdanning/2018/har-frisket-opp-einstein-dagens-skoleelever/>
- 8) **Da geniet Einstein tok feil (When the genius got it wrong) (2017)**, *Interview with National Geographic Norway*.
<http://natgeobloggen.no/2017/04/30/da-geniet-einstein-tok-feil/>