

Preprint articles

- [1] **Andersson L., Bäckdahl T., Blue P., Ma S.** *Stability for linearized gravity on the Kerr spacetime*, [arXiv:1903.03859 \[math.AP\]](#) 2019.
- [2] **Shah A. G., Whiting B. F., Aksteiner S., Andersson L., Bäckdahl T.** *Gauge-invariant perturbations of Schwarzschild spacetime* [arXiv:1611.08291 \[gr-qc\]](#) 2016. (7 citations)
- [3] **Aksteiner S. and Bäckdahl T.** *Symmetries of linearized gravity from adjoint operators* [arXiv:1609.04584 \[gr-qc\]](#) 2016. (9 citations)

Peer-reviewed original articles/book chapters

- [4] **Aksteiner S., Andersson L. and Bäckdahl T.** *New identities for linearized gravity on the Kerr spacetime*, *Phys. Rev. D* 99, 044043 (2019) [doi:10.1103/PhysRevD.99.044043](#), [arXiv:1601.06084 \[gr-qc\]](#). (13 citations)
- [5] **Aksteiner S. and Bäckdahl T.** *All local gauge invariants for perturbations of the Kerr spacetime*, *Phys. Rev. Lett.* 121, 051104 (2018) [doi:10.1103/PhysRevLett.121.051104](#), [arXiv:1803.05341 \[gr-qc\]](#). (6 citations)
- [6] **Andersson L., Bäckdahl T., Blue P.** *Geometry of black hole spacetimes*, pp 9-85 in *Asymptotic Analysis in General Relativity* (London Mathematical Society Lecture Note Series), Daudé, T., Häfner, D., & Nicolas, J. (Eds.). (2018), Cambridge University Press. [doi:10.1017/9781108186612.002](#), [arXiv:1610.03540 \[gr-qc\]](#).
- [7] **Andersson L., Bäckdahl T., Blue P.** *A new tensorial conservation law for Maxwell fields on the Kerr background* *Journal of Differential Geometry*, 105 (2017), no. 2, 163–176. [doi:10.4310/jdg/1486522812](#), [arXiv:1412.2960 \[gr-qc\]](#) 2014. (10 citations)
- [8] **Andersson L., Bäckdahl T., Blue P.** *Decay of solutions to the Maxwell equation on the Schwarzschild background* *Classical and Quantum Gravity*, IOP Publishing 2016, **33** 085010 [doi:10.1088/0264-9381/33/8/085010](#) (10 citations)
- [9] **Bäckdahl T., Valiente Kroon J. A.** *A formalism for the calculus of variations with spinors* *J. Math. Phys.* **57**, AIP 2016, 022502 [doi:10.1063/1.4939562](#) [arXiv:1505.03770 \[gr-qc\]](#) 2015. (6 citations)
- [10] **Andersson L., Bäckdahl T., Blue P.** *Spin geometry and conservation laws in the Kerr spacetime* in *Surveys in Differential Geometry, Vol 20, One hundred years of general relativity*. Eds S. T. Yau, L. Bieri., pp 183–226, International Press 2015 (Invited submission.) [doi:10.4310/SDG.2015.v20.n1.a8](#) [arXiv:1504.02069 \[gr-qc\]](#). (14 citations)
- [11] **Andersson L., Bäckdahl T., Blue P.** *Second order symmetry operators* *Classical and Quantum Gravity*, IOP Publishing 2014, **31** 135015 [doi:10.1088/0264-9381/31/13/135015](#) (IOP Select article) (See also [Author Insights](#)) (17 citations)
- [12] **Andersson L., Bäckdahl T., Joudioux J.** *Hertz potentials and asymptotic properties of massless fields* *Communications in Mathematical Physics*, **331** pp 755-803, 2014, [doi:10.1007/s00220-014-2078-x](#) (6 citations)
- [13] **Bäckdahl T., Valiente-Kroon J. A.** *Constructing “non-Kerrness” on compact domains* *J. Math. Phys.* **53**, AIP 2012, 042503 [doi:10.1063/1.3702569](#) (10 citations)

- [14] **Bäckdahl T., Valiente-Kroon J. A.** *Approximate twistors and positive mass*. Classical and Quantum Gravity, IOP Publishing 2011, **28** 075010
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- [15] **Bäckdahl T., Valiente-Kroon J. A.** *The "non-Kerrness" of domains of outer communication of black holes and exteriors of stars*. Proc. Roy. Soc. A, The Royal Society 2011, **467** 1701–1718, doi:[10.1098/rspa.2010.0535](https://doi.org/10.1098/rspa.2010.0535)
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- [16] **Bäckdahl T., Valiente-Kroon J. A.** *On the construction of a geometric invariant measuring the deviation from Kerr data*. Annales Henri Poincaré, Springer Basel AG 2010, **11** 1225–1271
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- [17] **Bäckdahl T., Valiente-Kroon J. A.** *Geometric invariant measuring the deviation from Kerr data*. Physical Review Letters, American Physical Society 2010, **104** 231102 (4pp)
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- [18] **Bäckdahl T.** *Relating the Newman–Penrose constants to the Geroch–Hansen multipole moments*. Classical and Quantum Gravity, IOP Publishing 2009, **26** 175021 (7pp)
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- [19] **Bäckdahl T.** *Axisymmetric stationary solutions with arbitrary multipole moments*. Classical and Quantum Gravity, IOP Publishing 2007, **24** p.2205-2215
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- [20] **Bäckdahl T, Herberthson M.** *Calculation of, and bounds for, the multipole moments of stationary spacetimes*. Classical and Quantum Gravity, IOP Publishing 2006, **23** p.5997-6006
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- [21] **Bäckdahl T, Herberthson M.** *Explicit multipole moments of stationary axisymmetric spacetimes*. Classical and Quantum Gravity, IOP Publishing 2005, **22** p.3585-3594
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(Listed under "Highlights of 2005 and 2006")
(Included in doctoral thesis) (26 citations)
- [22] **Bäckdahl T, Herberthson M.** *Static axisymmetric spacetimes with prescribed multipole moments*. Classical and Quantum Gravity 2005, IOP Publishing **22** p.1607-1621
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(Included in doctoral thesis) (30 citations)

Conference contributions (some peer-reviewed)

- [23] **Bäckdahl T.** *Symmetry operators and conserved currents*, Journal of Physics: Conference Series 600 (2015) 012051,
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- [24] **Bäckdahl T., Valiente Kroon J. A.** *How to Measure Deviation from the Kerr Initial Data: Recent Progress in Relativity and Gravitation: 100 Years after Einstein in Prague*, Springer Proceedings in Physics Vol 157, 2014, pp 19-24,
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- [25] **Bäckdahl T.** *Relating the Newman–Penrose constants to the Geroch–Hansen multipole moments*. Journal of Physics: Conference Series, IOP Publishing 2010, **229** 012016 (4pp)
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[doi:doi:10.1063/1.2218198](https://doi.org/10.1063/1.2218198)

Theses

- [27] **Bäckdahl T.** *Multipole Moments of Stationary Spacetimes*. Linköping Studies in Science and Technology. Dissertations, No. 1181, Linköpings universitet 2008,
<http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-11519>
ISBN: 978-91-7393-902-7, (Doctoral thesis)
- [28] **Bäckdahl T.** *Multipole moments of axisymmetric spacetimes*. Linköping Studies in Science and Technology. Thesis No. 1223, Linköpings universitet 2006,
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Open access computer programs

- [29] **Bäckdahl T., Aksteiner, S.** *SpinFrames* a computer algebra tool for handling Newman-Penrose (NP) and Geroch-Held-Penrose (GHP) form of spinor equations in xAct for Mathematica. (2015)
<http://xact.es/SpinFrames/index.html>
- [30] **Bäckdahl T.** *SymManipulator* a computer algebra tool for handling symmetrized tensor expressions in xAct for Mathematica. (2011-2015)
<http://www.xact.es/SymManipulator/index.html>
- [31] **Bäckdahl T., Martín-García J. M., Wardell, B.** *TexAct* Generating \TeX -code to format xAct expressions. (2008-2015)
<http://www.xact.es/TexAct/index.html>