Sondre Tesdal Galtung

Personal and contact details

Born: February 27, 1992 — Norway
Nationality: Norwegian

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Work experience

2020–2024 *Postdoctoral fellow*, Department of Mathematical Sciences, Norwegian University of Science and Technology – NTNU.

2016–2020 *PhD candidate*, Department of Mathematical Sciences, Norwegian University of Science and Technology – NTNU.

2014–2015 *Summer intern* in the research and development department, Gassco AS.

Education

2020 PhD in mathematics, Norwegian University of Science and Technology – NTNU.

2016 MSc in industrial mathematics, Norwegian University of Science and Technology – NTNU.

Grants, awards & other merits

2023 Junior fellowship, Institut Mittag-Leffler: Selected recipient of a grant for attending the research program *Order and Randomness in Partial Differential Equations* autumn 2023.

2022–2023 RCN abroad research stay grant: A grant from the Research Council of Norway (RCN) for a research stay at the Mathematical Institute, University of Oxford for the academic year 2022–2023.

2018–2019 Fulbright Scholarship 2018–2019: Visiting student researcher grant for a research stay at the Department of Mathematics, Pennsylvania State University during the academic year 2018–2019.

2017 Participant at the 5th *Heidelberg Laureate Forum*, selected as one of the 200 most qualified young researchers who applied for participation.

2016 Norwegian Computing Center's 2016 *master thesis prize* for best thesis in mathematics and computer science at NTNU.

2016 The 2016 *Stubban prize* for best grades among students graduating with a master's degree in mathematics at NTNU.

Publications & contributions

Preprints

2024 S. T. Galtung. The sticky particle dynamics of the 1D pressureless Euler-alignment system as a gradient flow. arXiv:2403.19020

2023 J. A. Carrillo, S. T. Galtung. Equivalence of entropy solutions and gradient flows for pressureless 1D Euler systems. arXiv:2312.04932

Research articles

2023 I. Ben-Porat, J. A. Carrillo, S. T. Galtung. Mean field limit for one dimensional opinion dynamics with Coulomb interaction and time dependent weights. DOI:10.1016/j.na.2023.113462

2022c A. Bressan, S. T. Galtung, Q. Sun. Optimal shapes for tree roots. *SIAM Journal on Mathematical Analysis*, **54**(4), 4757–4784. DOI:10.1137/21M1440281

2022b A. Bressan, S. T. Galtung, K. Grunert, K. T. Nguyen. Shock interactions for the Burgers–Hilbert equation. *Communications in Partial Differential Equations*, available online. DOI:10.1080/03605302.2022.2084628

2022a S. T. Galtung, K. Grunert. Stumpons are non-conservative traveling waves of the Camassa–Holm equation. *Physica D: Nonlinear Phenomena*, available online. DOI:10.1016/j.physd.2022.133196

2021b S. T. Galtung, X. Raynaud. A semi-discrete scheme derived from variational principles for global conservative solutions of a Camassa–Holm system. *Nonlinearity*, **34**(4), 2220–2274. DOI:10.1088/1361-6544/abc101

2021a S. T. Galtung, K. Grunert. A numerical study of variational discretizations of the Camassa–Holm equation. *BIT Numerical Mathematics*, **61**(4), 1271–1309. DOI:10.1007/s10543-021-00856-1

2020b A. Bressan, S. T. Galtung. A 2-dimensional shape optimization problem for tree branches. *Networks and Heterogeneous Media*, **16**(1), 1–29. DOI:10.3934/nhm.2020031

2020a A. Bressan, S. T. Galtung, A. Reigstad, J. Ridder. Competition models for plant stems. *Journal of Differential Equations*, **269**(2), 1571–1611. DOI:10.1016/j.jde.2020.01.013

2018b S. T. Galtung. Convergence rates of a fully discrete Galerkin scheme for the Benjamin–Ono equation. *Theory, Numerics and Applications of Hyperbolic Problems I*, 589–601. DOI:10.1007/978-3-319-91545-6_45

2018a S. T. Galtung. A convergent Crank–Nicolson Galerkin scheme for the Benjamin–Ono equation. *Discrete and Continuous Dynamical Systems – Series A*, **38**(3), 1243–1268. DOI:10.3934/dcds.2018051

2016 A. Oosterkamp, T. Ytrehus, S. T. Galtung. Effect of the choice of boundary conditions on modelling ambient to soil heat transfer near a buried pipeline. *Applied Thermal Engineering* **100**: 367–377. DOI:10.1016/j.applthermaleng.2016.01.057

Contributions at international conferences

2024 *XIV International Conference on Hyperbolic Problems*; Shanghai, China. Gave contributed talk.

2023 *Numerical methods for hyperbolic problems – numhyp23*; Bordeaux, France. Gave contributed talk.

2022 *XVIII International Conference on Hyperbolic Problems*; Malaga, Spain. Gave contributed talk.

2018 *XVII International Conference on Hyperbolic Problems*; University Park, PA, USA. Gave contributed talk and chaired the consecutive contributed session.

2017 *Heidelberg Laureate Forum*; Heidelberg, Germany. Held poster presentation.

2016 *XVI International Conference on Hyperbolic Problems*; Aachen, Germany. Gave contributed talk and wrote a proceedings paper.

Invited presentations

2024b *Third Norwegian meeting on PDEs*, University of Oslo. Invited national speaker.

2024a *Department of Mathematics and Statistics*, Florida International University. Invited speaker in the applied math seminar (online).

2023b *Institut Mittag-Leffler*, Djursholm, Sweden. Invited speaker at the research program *Order and Randomness in Partial Differential Equations*.

2023a *Department of Mathematics*, Linköping University. Invited speaker in the mathematical colloquium series.

2022–23 *Mathematical Institute*, University of Oxford. Invited speaker in the (informal) research group sem-

inars of J. A. Carrillo and G.-Q. Chen.

2022 *28th Nordic Congress of Mathematics*, Aalto University. Invited speaker in the *Nonlinear PDEs* session.

Teaching and courses

Teaching experience

2024 MA2501 Numerical methods, NTNU. Co-lecturer.

2020–2021 TMA4100/05 Calculus 1/2, NTNU. Lectured as part of the teaching staff.

2016–2018 TMA4100/05 Calculus 1/2, NTNU. Teaching assistant with responsibility for online assessment.

Completed pedagogical courses

2024 NTNU University pedagogy (Uniped) module: Development of pedagogical portfolio.

2021 NTNU University pedagogy (Uniped) module: Teaching, lecturing and dialogue.