

Submitted

15. **S. Du**, and S. N. Stechmann. Element learning: a systematic approach of accelerating finite element-type methods via machine learning, with applications to radiative transfer. [arXiv: 2308.02467](https://arxiv.org/abs/2308.02467).

Peer-reviewed

14. **S. Du**, and S. N. Stechmann. Inverse radiative transfer with goal-oriented hp-adaptive mesh refinement: adaptive-mesh inversion. *Inverse Probl.* 39 (2023), no. 11.
[DOI: 10.1088/1361-6420/acf785](https://doi.org/10.1088/1361-6420/acf785)
13. B. Cockburn, **S. Du**, M. A. Sánchez. A priori error analysis of new semidiscrete, Hamiltonian HDG methods for the time-dependent Maxwell's equations. *ESAIM: M2AN* 57 (2023), no.4, 2097 – 2129.
[DOI: 10.1051/m2an/2023048](https://doi.org/10.1051/m2an/2023048)
12. **S. Du**, and S. N. Stechmann. Fast, low-memory numerical methods for radiative transfer via hp-adaptive mesh refinement. *J. Comput. Phys.* 480 (2023).
[DOI: 10.1016/j.jcp.2023.112021](https://doi.org/10.1016/j.jcp.2023.112021)
11. **S. Du**, and S. N. Stechmann. A universal predictor-corrector approach for minimizing artifacts due to mesh refinement. *J. Adv. Model. Earth Syst.* 15 (2023).
[DOI: 10.1029/2023MS003688](https://doi.org/10.1029/2023MS003688)
10. B. Cockburn, **S. Du**, M. A. Sánchez. Combining finite element space-discretization with symplectic time-marching schemes for linear hamiltonian systems. *Front. Appl. Math. Stat.* 9 (2023).
[DOI: 10.3389/fams.2023.1165371](https://doi.org/10.3389/fams.2023.1165371)
9. M. A. Sánchez, **S. Du**, B. Cockburn, N.-C. Nguyen, J. Peraire. Symplectic Hamiltonian finite element methods for electromagnetics. *Comput. Methods Appl. Mech. Engrg.* 396 (2022).
[DOI: 10.1016/j.cma.2022.114969](https://doi.org/10.1016/j.cma.2022.114969)
8. B. Cockburn, M. A. Sánchez, **S. Du**. Discontinuous Galerkin methods with time-operators in their numerical traces for time-dependent electromagnetics. *Comput. Meth. Appl. Math.* (2022).
[DOI: 10.1515/cmam-2021-0215](https://doi.org/10.1515/cmam-2021-0215)
7. **S. Du**, and F.-J. Sayas. A note on devising HDG+ projections on polyhedral elements. *Math. Comp.* 90 (2021), 65-79.
[DOI: 10.1090/mcom/3573](https://doi.org/10.1090/mcom/3573)
6. **S. Du**. HDG methods for Stokes equation based on strong symmetric stress formulations. *J. Sci. Comput.* 85, 8 (2020).
[DOI: 10.1007/s10915-020-01309-7](https://doi.org/10.1007/s10915-020-01309-7)
5. **S. Du**, and F.-J. Sayas. A unified error analysis of hybridizable discontinuous Galerkin methods for the static Maxwell equations. *SIAM J. Numer. Anal.* 58 (2020), no. 2, 1367–1391.
[DOI: 10.1137/19M1290966](https://doi.org/10.1137/19M1290966)

4. **S. Du**, and F.-J. Sayas. New analytical tools for HDG in elasticity, with applications to elastodynamics. *Math. Comp.* 89 (2020), 1745-1782.
DOI: [10.1090/mcom/3499](https://doi.org/10.1090/mcom/3499)
3. **S. Du**, and N. Du. A factorization of least-squares projection schemes for ill-posed problems. *Comput. Meth. Appl. Math.* 20 (2020), no. 4, 783-798.
DOI: [10.1515/cmam-2019-0173](https://doi.org/10.1515/cmam-2019-0173)
2. T.S. Brown, **S. Du**, H. Eruslu, and F.-J. Sayas. Analysis of models for viscoelastic wave propagation. *Appl. Math. Nonlin. Sci.* 3 (2018), no. 1, 55-96.
DOI: [10.21042/AMNS.2018.1.00006](https://doi.org/10.21042/AMNS.2018.1.00006)

Books

1. **S. Du**, and F.-J. Sayas. An invitation to the theory of the Hybridizable Discontinuous Galerkin Method. *SpringerBriefs in Mathematics* (2019).
DOI: [10.1007/978-3-030-27230-2](https://doi.org/10.1007/978-3-030-27230-2)