Ivan Graham - List of Publications

The following list of publications is in reverse chronological order. Most papers which are dated after 2004 are also available in electronic form at
http://people.bath.ac.uk/masigg/publications

Journal articles

1. I.G. Graham and E. A. Spence, Two-level hybrid Schwarz preconditioners with piecewise-polynomial coarse spaces for the high-frequency Helmholtz equation, submitted 19th March 2025
https://arxiv.org/abs/2501.15976

2. I.G. Graham, F.Y. Kuo, D. Nuyens, I. H. Sloan and E. A. Spence, Quasi-Monte Carlo methods for uncertainty quantification of wave propagation and scattering problems modelled by the Helmholtz equation, submitted 18th February 2025
https://arxiv.org/abs/2502.12451

3. J. Galkowski, S. Gong, I.G. Graham, D. Lafontaine, E.A. Spence, Convergence of overlapping domain decomposition methods with PML transmission conditions applied to nontrapping Helmholtz problems, submitted 2 April 2024.
https://arxiv.org/abs/2404.02156

4. S. Downing, S. Gazzola, I.G. Graham and E.A. Spence, Optimisation of seismic imaging via bilevel learning, Inverse Problems 40 115008 (2024).
https://arxiv.org/abs/2301.10762

5. Z. Wu, I.G. Graham, D. Ma, Z. Zhang, A Filon-Clenshaw-Curtis-Smolyak rule for multi-dimensional oscillatory integrals with application to a UQ problem for the Helmholtz equation, Math. Comput., published electronically, 15 August 2024. Extended preprint: https://arxiv.org/abs/2208.10078

6. N. Bootland, V. Dolean, I. G. Graham, C. Ma and R. Scheichl,
Overlapping Schwarz methods with GenEO coarse spaces for indefinite and non-self-adjoint problems, IMA J.Numer. Anal. 43, 1899–1936 (2023).
https://arxiv.org/abs/2110.13537

7. S. Gong, I. G. Graham and E.A. Spence, Convergence of Restricted Additive Schwarz with impedance transmission conditions for discretised Helmholtz problems, Math. Comput. 92(2023), 175–215. https://arxiv.org/abs/2110.14495

8. S. Gong, M.J. Gander, I.G. Graham, D. Lafontaine and E.A. Spence, Convergence of parallel overlapping domain decomposition methods for the Helmholtz equation, Numer. Math. 152, 259–306 (2022).
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9. I.G. Graham, O.R. Pembery, E.A. Spence, Analysis of a Helmholtz preconditioning problem motivated by uncertainty quantification, Advances in Computational Mathematics 47 (2021) p68 (39pp). https://arxiv.org/abs/2005.13390

10. J.D. Betteridge, T.H. Gibson, I.G. Graham, E.H. Mueller, Multigrid preconditioners for the hybridized Discontinuous Galerkin discretisation of the shallow water equations, J. Comp. Physics 426, 109948 (2021). https://arxiv.org/abs/2004.09389.

11. S. Gong, I.G. Graham and E.A. Spence, Domain decomposition preconditioners for high-order discretisations of the heterogeneous Helmholtz equation, dedicated to the memory of John W. Barrett, IMA J. Numer. Anal. 41, 2139–2185 (2021). https://arxiv.org/abs/2004.03996

12. I.G. Graham, E.A. Spence and J. Zou, Domain Decomposition with local impedance conditions for the Helmholtz equation with absorption. SIAM J. Numer. Anal. 58(5), 2515–2543 (2020). https://arxiv.org/abs/1806.03731

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15. I.G. Graham and S.A. Sauter, Stability and error analysis for the Helmholtz equation with variable coefficients, Math. Comp. 89 (2020), 105-138 https://arxiv.org/abs/1803.00966.

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