

Complete List of Research Publications

Refereed Articles

- [1] E.G. Barnwell, W.J. Parnell, and I.D. Abrahams. Antiplane elastic wave propagation in pre-stressed periodic structures; tuning, band gap switching and invariance. *Wave Motion*, 63:98–110, 2016.
- [2] G.W. Evatt, M.J. Coughlan, K.H. Joy, A.R.D. Smedley, P.J. Connolly, and I.D. Abrahams. A potential hidden layer of meteorites below the ice surface of antarctica. *Nature Communications*, 7(Feb):10679, 2016.
- [3] W.P. Parnell, V-H. Nguyen, R. Assier, S. Naili, and I.D. Abrahams. Transient thermal mixed boundary value problems in the half-space. *SIAM Journal on Applied Mathematics*, 76(3):845–866, 2016.
- [4] P.A. Cotterill, W.P. Parnell, I.D. Abrahams, R. Miller, and M. Thorpe. The time-harmonic antiplane elastic response of a constrained layer. *Journal of Sound and Vibration*, 348:167–184, 2015.
- [5] R. De Pascalis, I.D. Abrahams, and W.J. Parnell. Simple shear of a compressible quasilinear viscoelastic material. *International Journal of Engineering Science*, 88(SI):64–72, 2015.
- [6] G.W. Evatt, I.D. Abrahams, M. Heil, C. Mayer, J. Kingslake, S.L. Mitchell, A.C. Fowler, and C.D. Clark. Glacial melt under a porous debris layer. *Journal of Glaciology*, 61(229):825–836, 2015.
- [7] P.A. Martin, I.D. Abrahams, and W.P. Parnell. One-dimensional reflection by a semi-infinite periodic row of scatterers. *Wave Motion*, 58(Nov):1–12, 2015.
- [8] T. Shearer, W.J. Parnell, and I.D. Abrahams. Antiplane wave scattering from a cylindrical cavity in pre-stressed nonlinear elastic media. *Proceedings of the Royal Society, A* 471(2182):20150450, 2015.
- [9] R. De Pascalis, I.D. Abrahams, and W.J. Parnell. On nonlinear viscoelastic deformations: a reappraisal of fung’s quasi-linear viscoelastic model. *Proceedings of the Royal Society, A* 470(2166):20140058, 2014.
- [10] R. De Pascalis, I.D. Abrahams, and W.J. Parnell. Predicting the pressure-volume curve of an elastic microsphere composite. *Journal of the Mechanics and Physics of Solids*, 61(4):1106–1123, 2013.
- [11] T. Shearer, I.D. Abrahams, and W.J. Parnell. Torsional wave propagation in a pre-stressed hyperelastic annular circular cylinder. *Quarterly Journal of Mechanics and Applied Mathematics*, 66(4):465–487, 2013.
- [12] I.D. Abrahams and J.B. Lawrie. Scattering of flexural waves by a semi-infinite crack in an elastic plate carrying an electric current. *Mathematics and Mechanics of Solids*, 17(1):43–58, 2012.
- [13] M. Heil, T. Kharrat, P.A. Cotterill, and I.D. Abrahams. Quasi-resonances in sound-insulating coatings. *Journal of Sound and Vibration*, 331(21):4774–4784, 2012.
- [14] W.J. Parnell and I.D. Abrahams. Antiplane wave scattering from a cylindrical void in a pre-stressed incompressible neo-Hookean material. *Communications in Computational Physics*, 11(2):367–382, 2012.
- [15] E. Perrey-Debain and I.D. Abrahams. TE mode mixing dynamics in curved multimode optical waveguides. *Communications in Computational Physics*, 11(2):525–540, 2012.
- [16] N. Willoughby, W.J. Parnell, A.L. Hazel, and I.D. Abrahams. Homogenization methods to approximate the effective response of random fibre-reinforced composites. *International Journal of Solids and Structures*, 49(13):1421–1433, 2012.
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- [18] R. Green, G. Fusai, and I.D. Abrahams. The Wiener-Hopf technique and discretely monitored path-dependent option pricing. *Mathematical Finance*, 20(2):259–288, 2010.
- [19] W.J. Parnell and I.D. Abrahams. Multiple point scattering to determine the effective wavenumber and effective material properties of an inhomogeneous slab. *Waves in Random and Complex Media*, 20(4):678–701, 2010.
- [20] W.J. Parnell, I.D. Abrahams, and P.R. Brazier-Smith. Effective properties of a composite half-space: exploring the relationship between homogenization and multiple-scattering theories. *Quarterly Journal of Mechanics and Applied Mathematics*, 63(2):145–175, 2010.
- [21] E. Perrey-Debain and I.D. Abrahams. A general asymptotic expansion formula for integrals involving high-order orthogonal polynomials. *SIAM Journal on Scientific Computing*, 31(5):3884–3904, 2009.
- [22] I.D. Abrahams, A.M.J. Davis, and S.G. Llewellyn Smith. Asymmetric channel divider in stokes flow. *SIAM Journal on Applied Mathematics*, 68(5):1439–1463, 2008.
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- [34] E. Perrey-Debain and I.D. Abrahams. A diffusion analysis approach to TE mode propagation in randomly perturbed optical waveguides. *SIAM Journal on Applied Mathematics*, 68(2):523–543, 2007.
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- [40] W.J. Parnell and I.D. Abrahams. Dynamic homogenization in periodic fibre reinforced media. Quasi-static limit for SH waves. *Wave Motion*, 43(6):474–498, 2006.
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Books and Edited Works

- [B1] W.J. Parnell, and I.D. Abrahams. Introduction to Homogenization Methods in Continuum Mechanics. *Cambridge University Press*, ~240pp, to appear, 2017.
- [B2] M. Lowe, N. Saffari, A. Lhemery, M. Deschamps, A. Leger, and I.D. Abrahams. Proceedings of 6th Groupe De Recherche (GDR) 2501 and 9th Anglo-French Physical Acoustics Joint Conference (AFPAC), January 2010. *IOP Journal of Physics Conference Series*, 269:250 pages, 2011.
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- [B5] I.D. Abrahams, P.A. Martin and A.N. Norris. Special Issue. *Wave Motion*, 33(1):1-116, 2001.

Other Publications

- [S1] I.D. Abrahams. Foreword to *UK Success Stories in Industrial Mathematics*, eds. P.J. Aston, A.J. Mulholland & K.M.M.Tant, Springer, Switzerland 2016.
- [S2] B.D Sleeman, I.D. Abrahams. Douglas Samuel Jones MBE. 10 January 1922–26 November 2013, *Biographical Memoirs of Fellows of the Royal Society*, 61:203-224, 2015.
- [S3] I.D. Abrahams, P.A. Martin. Fritz Joseph Ursell. 28 April 1923–11 May 2012, *Biographical Memoirs of Fellows of the Royal Society*, 59:407-421, 2013.
- [S4] D. Yumashev, I.D. Abrahams, C.J. Chapman, P. Joseph, N. Peake, C.P. Walker, P.A. Cotterill. Broadband Hydroacoustics Research Report (Unclassified), Phase 2, Thales Underwater Systems UK, Contract Number Dstlx 1000062650 BHAR, Document Number: 0026K7626,62921576,575, December 2012.
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- [S6] I.D. Abrahams, P.A. Martin, and A.N. Norris. G.R. Wickham: An appreciation. *Wave Motion*, 33(1):1-6, 2001.
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- [S8] I.D. Abrahams. Interaction of Sound Waves with Finite Plates and Cavities. *AUWE internal report (unclassified)*, 65382, 1983.
- [S9] I.D. Abrahams. Scattering of Sound by Finite Thin Elastic Plates and Cavities. *PhD Thesis, Imperial College London*, 1982.