

OSCAR P. BRUNO
PUBLICATIONS

- [1] “WKB Across Caustics: The Screened-WKB Method”, Oscar P. Bruno and Martin Maas. Preliminary version. Available at <https://arxiv.org/pdf/2301.03814.pdf>
- [2] “IFGF-accelerated integral equation solvers for acoustic scattering”, Edwin Jimenez, Christoph Bauinger, and Oscar P. Bruno. Submitted. Available at <https://arxiv.org/abs/2112.06316>
- [3] “Bootstrap Domain-of-dependence: bounds and time decay of solutions of the wave equation”, Thomas Anderson and Oscar P. Bruno. Submitted. Available at <https://arxiv.org/pdf/2010.09002.pdf>
- [4] “Direct/iterative hybrid solver for scattering by inhomogeneous media”, Oscar P. Bruno and Ambuj Pandey. To appear in SIAM Journal on Scientific Computing. Available at <https://arxiv.org/pdf/1907.05914.pdf>
- [5] “Massively Parallelized Interpolated Factored Green Function Method”, Christoph Bauinger and Oscar P. Bruno, Journal of Computational Physics **475**, p. 111837, (2023).
- [6] “A boundary integral method for 3D nonuniform dielectric waveguide problems via the windowed Green function”, Emmanuel Garza, Constantine Sideris, and Oscar P. Bruno, IEEE Transactions on Antennas and Propagation **71**, p. 3758, (2023).
- [7] “Parallel inverse-problem solver for time-domain optical tomography with perfect parallel scaling”, Enzo Gaggioli and Oscar P. Bruno, Journal of Quantitative Spectroscopy & Radiative Transfer **290**, p. 108300, (2022).
- [8] “Foundry-Fabricated Grating Coupler Demultiplexer Inverse-Designed via Fast Integral Methods”, Constantine Sideris, Aroutin Khachaturian, Alexander D. White, Oscar P. Bruno, Ali Hajimiri, Nature Communications Physics **5**, 68 (2022).
- [9] “FC-based shock-dynamics solver with neural-network localized artificial-viscosity assignment”, Oscar P. Bruno, Jan S. Hesthaven, and Daniel V. Leibovici, Journal of Computational Physics X **15**, p. 100110, (2022).
- [10] “Two-dimensional Fourier Continuation and applications”, Oscar P. Bruno and Jagabandhu Paul, SIAM Journal on Scientific Computing **44**, pp. A964-A992, (2022).
- [11] “Vector potential-based MHD solver for non-periodic flows using Fourier continuation expansions”, Mauro Fontana, Pablo D. Mininni, Oscar P. Bruno and P. Dmitruk, Computer Physics Communications **275**, 108304, (2022).
- [12] “Skin effect in neutron transport theory”, Enzo L. Gaggioli, Darío M. Mitnik, and Oscar P. Bruno, Physical Review E **104**, no. 3, pp. L032801–L032801–6, (2021).
- [13] “Interpolated Factored Green Function method for accelerated solution of scattering problems”, Christoph Bauinger and Oscar P. Bruno. Journal of Computational Physics **430**, 110095 (2021)
- [14] “A windowed Green function method for elastic scattering problems on a half-space”, Oscar P. Bruno and Tao Yin. Computer methods in applied mechanics and engineering **376**, 113651 (2021)
- [15] “Weighted integral solvers for elastic scattering by open arcs in two dimensions”, Oscar P. Bruno, Liwei Xu and Tao Yin, International Journal for Numerical Methods in Engineering **42**, 1-18, (2021)

- [16] “High-order, dispersionless “fast-hybrid” wave equation solver. part I: $O(1)$ sampling cost via incident-field windowing and recentering”, Thomas G. Anderson, Oscar P. Bruno and Mark Lyon. SIAM Journal of Scientific Computing **42**, A1348-A1379 (2020)
- [17] “A Chebyshev-based rectangular-polar integral solver for scattering by general geometries described by non-overlapping patches”, Oscar P. Bruno and E. Garza. Journal of Computational Physics **421** 109740 (2020)
- [18] “Domains Without Dense Steklov Nodal Sets”, O. P. Bruno and J. Galkowski, Journal of Fourier Analysis and Applications **26:45** (2020)
- [19] “Fourier continuation method for incompressible fluids with boundaries”, Mauro Fontana, Oscar P. Bruno, Pablo D. Mininni, Pablo Dmitruk. Computer Physics Communications **256** 107482 (2020)
- [20] “On the evaluation of quasi-periodic Green functions and wave-scattering at and around Rayleigh-Wood anomalies”, Oscar P. Bruno and Agustin G. Fernandez Lado. Journal of Computational Physics **410** 109352 (2020)
- [21] “Regularized integral equation methods for elastic scattering problems in three dimensions”, Oscar P. Bruno and Tao Yin. Journal of Computational Physics **410** 109350 (2020)
- [22] “Wave enhancement through optimization of boundary conditions”, Habib Ammari, Oscar P. Bruno, Kthim Imeri and Nilima Nigam. SIAM Journal of Scientific Computing **42** B207-B224 (2020)
- [23] “Higher-order implicit-explicit multi-domain compressible Navier-Stokes solvers”, Oscar P. Bruno, Max Cubillos and Edwin Jimenez. Journal of Computational Physics **391** 322-346 (2019)
- [24] “Ultrafast simulation and optimization of nanophotonic devices with integral equation methods”, Constantine Sideris, Emmanuel Garza, and Oscar P. Bruno. ACS Photonics **6**, 3233—3240 (2019)
- [25] “Light transport with the equation of radiative transfer: The Fourier Continuation – Discrete Ordinates (FC-DOM) Method”, Enzo L. Gaglioli, Oscar P. Bruno and Dario M. Mitnik. Journal of Quantitative Spectroscopy & Radiative Transfer **236** 106589 (2019)
- [26] “Shifted equivalent sources and FFT acceleration for periodic scattering problems, including Wood anomalies”, O. P. Bruno and M. Maas. Journal of Computational Physics **378** 548–572 (2019)
- [27] “Regularity theory and high order numerical methods for the (1d)-fractional Laplacian”, G. Acosta, J. P. Borthagaray, O. P. Bruno and M. Maas. Mathematics of Computation **312**, 1821–1857 (2018)
- [28] “Three-dimensional quasi-periodic shifted Green function throughout the spectrum, including Wood anomalies”, O. P. Bruno, S. Shipman, C. Turc and S. Venakides, Proc. R. Soc. A **473**, (2017)
- [29] “Windowed Green Function Method for Nonuniform Open-Waveguide Problems”, O. P. Bruno, E. Garza and C. Pérez-Arcancibia. IEEE Transactions on Antennas and Propagation **65**, 4684–4692 (2017)
- [30] “Rapidly convergent quasi-periodic Green functions for scattering by arrays of cylinders—including Wood anomalies”, O. P. Bruno, and A. G. Fernandez-Lado. Proceedings of the Royal Society of London A **473**, 20160802 (2017)
- [31] “Regularized integral formulation of mixed Dirichlet-Neumann problems”, E. Akhmetgaliyev and O. P. Bruno. Journal of Integral Equations and applications **29**, 493–529 (2017)
- [32] “On the quasi-unconditional stability of BDF-ADI solvers for the compressible Navier-Stokes equations”, O. P. Bruno and M. Cubillos. SIAM Journal on Numerical Analysis **55**, 892–922, (2017)

- [33] “Windowed Green Function method for layered-media scattering”, O. P. Bruno, M. Lyon, C. Perez-Arancibia and C. Turc. SIAM Journal on Applied Mathematics **76**, 1871–1898, (2016)
- [34] “Superalgebraically convergent smoothly windowed lattice sums for doubly periodic Green functions in three-dimensional space”, O. P. Bruno, S. Shipman, C. Turc and S. Venakides, Proc. R. Soc. A **472**, doi 10.1098/rspa.2016.0255, (2016)
- [35] “Higher-order in time quasi-unconditionally stable ADI solvers for the compressible Navier-Stokes equations in 2D and 3D curvilinear domains”, O. P. Bruno and M. Cubillos, Journal of Computational Physics **307**, 476–495 (2016)
- [36] “An FC-based spectral solver for elastodynamic problems in general three-dimensional domains”, F. Amlani and O. P. Bruno, Journal of Computational Physics **307**, 333–354 (2016)
- [37] “A boundary integral algorithm for the Laplace Dirichlet-Neumann eigenvalue problem”, E. Akhmetgaliyev, O. Bruno and N. Nigam, Journal of Computational Physics **298**, 1–28 (2015)
- [38] “A generalized Calderón formula for open-arc diffraction problems: theoretical considerations”, S. Lintner and O. P. Bruno. Proc. Roy. Soc. Edinburgh **145A**, 331–364, 2015.
- [39] “Integral equations requiring small numbers of Krylov-subspace iterations for two-dimensional penetrable scattering problems”, Y. Boubendir, O. P. Bruno, D. Levadoux and C. Turc, Applied Numerical Mathematics **95**, 82–98 (2015).
- [40] “Higher-Order Linear-Time Unconditionally Stable ADI Methods for Nonlinear Convection-Diffusion PDE Systems”, O. P. Bruno and E. Jimenez. Journal of Fluids Engineering **136**, 060904-1–060904-7 (2014).
- [41] “High-order integral equation methods for problems of scattering by bumps and cavities on half-planes”, C. P. Arancibia and O. P. Bruno, J. Opt. Soc. Am. A **31**, 1738–1746 (2014).
- [42] “Electromagnetic power absorption due to bumps and trenches on flat surfaces”, C. P. Arancibia, P. Zhang, O. P. Bruno, and Y. Y. Lau, Journal of Applied Physics **116**, 124904-1–124904-10 (2014).
- [43] “Rapidly convergent two-dimensional quasi-periodic Green function throughout the spectrum—including Wood anomalies”, O. P. Bruno and B. Delourme, J. Comput. Phys. **262**, 262–290 (2014).
- [44] “A high-order integral solver for scalar problems of diffraction by screens and apertures in three dimensional space”, O. P. Bruno and S. Lintner, J. Comput. Phys. **252**, 250–274 (2013).
- [45] “Convergence analysis of a high-order Nystrom integral-equation method for surface scattering problems”, O. Bruno, V. Dominguez, F. Sayas. Numer. Math. **124**, 603–645 (2013).
- [46] “Spatially Dispersionless, Unconditionally Stable FC-AD Solvers for Variable-Coefficient PDEs”, O. P. Bruno and A. Prieto. J. Sci. Comput. DOI 10.1007/s10915-013-9734-8 (2013).
- [47] “Second-kind integral solvers for TE and TM problems of diffraction by open arcs”, O. P. Bruno and S. Lintner. Radio Science **47**, RS6006, doi:10.1029/2012RS005035 (2012).
- [48] “Fourier continuation methods for high-fidelity simulation of nonlinear acoustic beams”, N. Albin, O. P. Bruno, T. Cheung and R. Cleveland. Jour. Acous. Soc. Amer. **230**, 2371–2387 (2012).
- [49] “Numerical differentiation of approximated functions with limited order-of-accuracy deterioration”, O. P. Bruno and D. Hoch. SIAM Journal on Numerical Analysis **10**, 1581–1603 (2012).

- [50] “Regularized integral equations and fast high-order solvers for sound-hard acoustic scattering problems” O. P. Bruno, T. Elling and C. Turc. International Journal for Numerical Methods in Engineering **91**, 1045–1072 (2012).
- [51] “A spectral FC solver for the compressible Navier-Stokes equations in general domains I: Explicit time-stepping”, N. Albin, O. P. Bruno, Journal of Computational Physics **230**, 6248–6270 (2011).
- [52] “Multi-domain Fourier-continuation/WENO hybrid solver for conservation laws”, K. Shahbazi, N. Albin, O. P. Bruno, J. S. Hesthaven, Journal of Computational Physics **230**, 8779–8796 (2011).
- [53] “Efficient high-order evaluation of scattering by periodic surfaces: vector-parametric gratings and geometric singularities”, O. P. Bruno and M. Haslam, Waves in Comp. and Rand. Media **20**, 530–550 (2010).
- [54] “High-order unconditionally stable FC-AD solvers for general smooth domains I. Basic elements”, O. P. Bruno and M. Lyon, Journal of Computational Physics **229**, 2009–2033 (2010).
- [55] “High-order unconditionally-stable FC-AD solvers for general smooth domains II. Elliptic, Parabolic and Hyperbolic PDEs; Theoretical considerations”, M. Lyon and O. P. Bruno, Journal of Computational Physics, **229** 3358–3381 (2010).
- [56] “Magnetic nanoparticle transport within flowing blood and into surrounding tissue” A. Nacev, C. Beni, O. P. Bruno and B. Shapiro; Nanomedicine **5**, 1459–1466 (2010).
- [57] “Numerical modeling and measurement by pulsed television holography of ultrasonic displacement maps in plates with through-thickness defects”, J. López-Vázquez, J. Deán, C. Trillo, A. Doval, J. Fernández, F. Amlani, O. P. Bruno; Optical Engineering **49**, 095802 (2010).
- [58] “The behaviors of ferro-magnetic nano-particles in and around blood vessels under applied magnetic fields”, A. Nacev, C. Beni, O. P. Bruno, and B. Shapiro, J. Magn. Magn. Mater. **323**, 651–668 (2010).
- [59] “Evaluation of Propagation of GPS Signals through the Atmosphere via High-Frequency Localization and Rytov’s Approximation”, J. Chaubell, C. Ao and O. P. Bruno, Radio Science **44**, RS1012 (2009).
- [60] “A high-order integral algorithm for highly singular PDE solutions in Lipschitz domains”, O. P. Bruno, J. Oval and C. Turc, Computing **84**, 149–181 (2009).
- [61] “Efficient high-order evaluation of scattering by periodic surfaces: deep gratings, high frequencies, and glancing incidences”, O. P. Bruno and M. Haslam, J. Opt. Soc. Am. A **26**, 658–668 (2009).
- [62] “Electromagnetic integral equations requiring small numbers of GMRES iterations”, O. P. Bruno, T. Elling, R. Paffenroth and C. Turc, Journal of Computational Physics **228** 6169–6183 (2009).
- [63] “Rise of correlations of transformation strains in random polycrystals”, L. Berlyand, O. P. Bruno, and A. Novikov, SIAM J. Math. Anal. **40**, 1550–1584 (2008).
- [64] “Accurate, high-order representation of complex three-dimensional surfaces via Fourier-Continuation analysis”, O. P. Bruno, Y. Han and M. Pohlman; Journal of Computational Physics **227**, 1094–1125 (2007).
- [65] “On a viscous Critical-Stress model of martensitic phase transitions”, J. Weatherwax, D. Vaynblat, O. P. Bruno and R. Rosales; Journal of Applied Physics **102**, 064905 (2007)
- [66] “Superlens-cloaking of small dielectric bodies in the quasistatic regime” O. P. Bruno and Stéphane Lintner, Journal of Applied Physics **102**, 124502 (2007)

- [67] “High order methods for high-frequency scattering applications”, O. Bruno and F. Reitich. In Modeling and Computations in Electromagnetics: A Volume Dedicated to Jean-Claude Nédélec, Lecture Notes in Computational Science and Engineering, H. Ammari, editor, Springer-Verlag 129-164 (2007)
- [68] “Regularity theory and super-algebraic solvers for wire antenna problems”, O. P. Bruno and M. C. Haslam; SIAM Jour. Sci. Comp. **29**, 1375–1402 (2007).
- [69] “Time Stepping Via One-Dimensional Padé Approximation”, D. Amundsen and O. Bruno; J. Sci. Comput. **30** 83-115. DOI 10.1007/s10915-005-9021-4, (2007)
- [70] “An $\mathcal{O}(1)$ Integration Scheme for Three-Dimensional Surface Scattering Problems”, O. P. Bruno, and C. Geuzaine; Journal of Computational and Applied Mathematics **204**, 463–476 (2007).
- [71] “On the $\mathcal{O}(1)$ solution of multiple-scattering problems”, C. Geuzaine, O. P. Bruno, and F. Reitich; IEEE Trans. Magn. **41**, 1488-1491 (2006).
- [72] “One-dimensional inverse scattering problem for optical coherence tomography”, O. P. Bruno and J. Chaubell; Inverse Problems **21**, 499-524, (2005).
- [73] “Higher-order Fourier approximation in scattering by two-dimensional, inhomogeneous media”, O. P. Bruno and M. Hyde; SIAM J. Numer. Anal. **42**, 2298-2819, (2005).
- [74] “A Fast, High-Order Method for Scattering by Penetrable Bodies in Three Dimensions”, M. Hyde and O. P. Bruno; J. Comput. Phys. **202**, 236–261 (2005).
- [75] “WKB and turning point theory for second-order difference equations”; J. Geronimo, O. P. Bruno and W. Van Assche, Operator Theory: Advances and applications **154**, 101–138 (2004).
- [76] “New high-order integral methods in computational electromagnetism”, O. P. Bruno, CMES-Computer Modeling in Engineering & Sciences **5** 319–330, (2004).
- [77] “Prescribed error tolerances within fixed computational times for scattering problems of arbitrarily high frequency: the convex case”, O. P. Bruno, C. Geuzaine, J. Monro, and F. Reitich; Phil. Trans. Roy. Soc. London A, **362**, 629-645 (2004).
- [78] “An efficient, preconditioned, high-order solver for scattering by two-dimensional, inhomogeneous media”, O. P. Bruno and M. Hyde; J. Comput. Phys. **200**, 670–694 (2004).
- [79] “A fast algorithm for the simulation of polycrystalline misfits II: three space dimensions”, G. Goldsztein and O. P. Bruno, Proc. Roy. Soc. London A, DOI: [10.1098/rspa.2003.1223](https://doi.org/10.1098/rspa.2003.1223) (2004).
- [80] “A fast high-order solver for problems of scattering by heterogeneous bodies”, O. P. Bruno and A. Sei, IEEE Trans. Antenn. Propag. **51**, pp. 3142-3154 (2003).
- [81] “Inverse scattering problem for optical coherence tomography”, O. P. Bruno and J. Chaubell, Optics Letters. **28**, 2049–2051 (2003)
- [82] “Fast, High-Order, High-Frequency Integral Methods for Computational Acoustics and Electromagnetism”, O. P. Bruno, in Topics in Computational Wave Propagation and Inverse Problems; M. Ainsworth, P. Martin, M. Ainsworth, P. Davies, D. Duncan, eds. (2003)
- [83] “A fast, high-order method for scattering by inhomogeneous media in three dimensions”, E. M. Hyde, and O. P. Bruno, Physica B. **338** 82–86 (2003)
- [84] “Wave scattering by inhomogeneous media: efficient algorithms and applications”, O. P. Bruno, Physica B **338** 67–73 (2003)

- [85] “High-Order High-Frequency Solutions of Rough Surface Scattering Problems”, O. P. Bruno, A. Sei, and M. Caponi, *Radio Science* **37**, 10.1029/2000RS002551 (2002)
- [86] “Fast, high-order, high-frequency *accurate Fourier methods* for scattering problems”, O. P. Bruno, *IEEE Antennas and Propagation Society International Symposium* **3** 180–183 (2002)
- [87] “Shape Deforming Phase Transition in Solids: Energetics and pseudoelasticity”, O. P. Bruno, *Solid Mechanics and Its Applications* **62** 319-324, (2002)
- [88] “Surface scattering in 3-D: an accelerated high order solver”, O. P. Bruno and L. Kunyansky, *Proc. R. Soc. Lond. A* **457**, 2921-2934 (2001).
- [89] “A Fast, High-Order Algorithm for the Solution of Surface Scattering Problems: Basic Implementation, Tests and Applications”, O. P. Bruno and L. Kunyansky, *Jour. of Comp. Phys.* **169**, 80-110 (2001).
- [90] “On the magneto-elastic properties of elastomer-ferromagnet composites”, L. Borcea and O. P. Bruno, *J. Mech. Phys. Solids*, **49**, 2877-2919 (2001).
- [91] “Fast, high-order solution of surface scattering problems”, O. P. Bruno, O. and L. Kunyansky, *Antennas and Propagation Society International Symposium* **2** 554-557 (2001) DOI: 10.1109/APS.2001.959784.
- [92] “Boundary-variation solution of eigenvalue problems for elliptic operators”, O. P. Bruno and F. Reitich, *The Jour. Fourier Anal. Appl.* **7**, 171–189, (2001).
- [93] “Shock-induced martensitic phase transitions: critical stresses, two-wave structures, Riemann problems”, O. P. Bruno and D. Vaynblat, *Proc. Roy. Soc. London A*, **457** 2871–2920 (2001).
- [94] “Two-wave structures in shock-induced martensitic phase transitions”, O. P. Bruno and D. Vaynblat, *Math. Comput. Model.* **34** 1261–1271 (2001)
- [95] “A fast high-order solver for EM scattering from complex penetrable bodies: TE case”, O. P. Bruno and A. Sei, *IEEE Trans. Antenn. Propag.*, **48**, pp. 1862-1865 (2000).
- [96] “Numerical simulation of martensitic transformations in two- and three-dimensional polycrystals”, O. P. Bruno and G. Goldsztein, *J. Mech. Phys. Solids* **48**, 1175–1201 (2000).
- [97] “A fast algorithm for the simulation of polycrystalline misfits: martensitic transformations in two space dimensions”, O. P. Bruno and G. Goldsztein, *Proc. Roy. Soc. London* **455**, (1999) 4245–4276
- [98] “Study of Polarization Dependent Scattering Anomalies with Application to Oceanic Scattering problems”, O. P. Bruno, A. Sei and M. Caponi, *Radio Science*, **34**, 385–411 (1999).
- [99] “Boundary-variation solutions for bounded-obstacle scattering problems in three dimensions”, O. P. Bruno and F. Reitich *J. Acoust. Soc. Am.* **104**, 2579 (1998)
- [100] “Bounds on the effective elastic properties of martensitic polycrystals”, O. P. Bruno and F. Reitich, *IMA volumes in mathematics and its applications* **99** 51–62 (1998)
- [101] “Energetics in Martensites”, O. P. Bruno, *Proc. SPIE* **3039**, 14 (1997).
- [102] “A high order solver for problems of scattering by heterogeneous bodies”, O. P. Bruno and A. Sei, *Proc. ACES* 1296–1302 (1997).
- [103] “The overall elastic energy of polycrystalline martensitic solids”, O. P. Bruno, F. Reitich and P. H. Leo, *J. Mech. Phys. Solids* **44**, 1051–1101 (1996).
- [104] “Calculation of Electromagnetic Scattering via Boundary Variations and Analytic Continuation”, O. P. Bruno and F. Reitich, *ACES* **11** (1996), 17–31

- [105] “On the MHD equations in a three dimensional toroidal geometry”, O. P. Bruno and P. Laurence, Comm. Pure Appl. Math. **49**, 717–764 (1996).
- [106] “Free boundary conditions at austenite-martensite interfaces”, O. P. Bruno, P. Leo and F. Reitich, Phys. Rev. Lett. **74** 746–749 (1995).
- [107] “Quasi-Static dynamics and Pseudoelasticity in Polycrystalline Shape-Memory wires”; O. P. Bruno, Smart Materials and Structures **4** (1995), 7–13.
- [108] “A new approach to the solution of problems of scattering by bounded obstacles”, O. P. Bruno and F. Reitich, Ultra-Wideband Short-Pulse Electromagnetics **2**, L. Carin and L. Felsen eds., (1995), 503–512.
- [109] “Maxwell Equations in a Nonlinear Kerr Medium”; O. Bruno, and F. Reitich, Proceedings of the Royal Society of London **447** (1994), 65–76.
- [110] “Effective moduli of Strongly Heterogeneous Composites”, O. Bruno, Calculus of Variations, Homogenization and Continuum Mechanics, G. Bouchitte, G. Buttazzo and P. Suquet (eds) 99–115, (1994)
- [111] “Effective properties of composite materials in the cases of weak and strong heterogeneity”, O. Bruno, Proceedings of the 31st annual technical meeting of the Society for Engineering Science, (1994), 214.
- [112] “Quasi-static dynamics and pseudoelasticity in polycrystalline shape-memory wires”, O. Bruno, Proc. SPIE **2192**, 370–379, (1994).
- [113] “New approach to the solution of problems of scattering by bounded obstacles”, O. P. Bruno and F. Reitich, Proc. SPIE **2192**, 20–28, (1994).
- [114] “Approximations of analytic functions: a method of enhanced convergence”; O. P. Bruno and F. Reitich, Mathematics of Computation **63** 195–213 (1994).
- [115] “On the existence of three dimensional sharp boundary solutions of the ideal MHD equilibrium equations in a torus”, O. P. Bruno and P. Laurence, Comptes Rendus Acad. Sci. Paris, t. **317**, Serie I, (1993), 337–341
- [116] “Numerical solution of diffraction problems: a method of variation of boundaries III. Three dimensional doubly periodic gratings”, O. P. Bruno and F. Reitich, Journal of the Optical Society of America 10, (1993) 2551–2562.
- [117] “Numerical solution of diffraction problems: a method of variation of boundaries II. Padé approximants and singularities”, O. P. Bruno and F. Reitich, Jour. Opt. Soc. Am. A **10**, (1993), 2307–2316
- [118] “Pseudoelasticity, phase boundary dynamics and heat transfer in shape-memory wires”, MECAMAT 93 International Seminar on Micromechanics of Materials, Editions Eyrolles, Paris, 1993. O. P. Bruno, P. Leo and T. Shield, 83–93, (1993)
- [119] “Accurate calculation of diffraction grating efficiencies”, O. P. Bruno and F. Reitich, Proc. SPIE **1919**, 236–247, (1993).
- [120] “Asymptotic behavior for a coalescence problem”; O. P. Bruno, A. Friedman and F. Reitich, Transactions of the American Mathematical Society **338**, 133–158 (1993).
- [121] “Transient heat transfer effects on the pseudoelastic behavior of shape memory wires”, P. Leo, T. Shield and O. P. Bruno, Acta Metall. Mater. **41**, 2477–2485 (1993).
- [122] “On the stiffness of materials containing a disordered array of microscopic holes or hard inclusions”; O. P. Bruno and P. Leo, Archive for Rational Mechanics and Analysis **121**, (1993), 303–338

- [123] “Numerical solution of diffraction problems: a method of variation of boundaries”, O. P. Bruno and F. Reitich, *Jour. Opt. Soc. Am. A*, **10**, 1168–1175 (1993).
- [124] “Solution of a boundary value problem for Helmholtz equation via variation of the boundary into the complex domain”; O. P. Bruno and F. Reitich, *Proc. of the Royal Soc. of Edinburgh* **122A**, 317–340 (1992).
- [125] “The effective conductivity of strongly heterogeneous composites”; O. P. Bruno, *Proc. Royal Soc. London A* **433**, 353–381 (1991).
- [126] “Taylor series and bounds for the effective conductivity and the effective elastic moduli of multicomponent composites and polycrystals”; O. P. Bruno, *Asymptotic Analysis* **4**, (1991), 339–365
- [127] “Effective conductivity and average polarizability of random polycrystals”; M. Avellaneda and O. P. Bruno, *Journal of Mathematical Physics* **31**, (1990), 2047–2056
- [128] “Interchangeability and bounds for the effective conductivity of the square lattice”; O. P. Bruno and K. Golden, *Journal of Statistical Physics* **61** $\frac{1}{2}$, 361–382 (1990).
- [129] “The effective conductivity of an infinitely interchangeable mixture”; O. P. Bruno, *Communications on Pure and Applied Mathematics* **43**, 769–807 (1990).
- [130] The effective conductivity of composites; O. Bruno, *Lectures in Applied Mathematics*, AMS, Proceedings of the AMS–SIAM Summer Seminar on Mathematics of Random Media, **27**, (1989), 293–300.
- [131] Three problems concerning ideals of differentiable functions; O. Bruno, *Journal of pure and applied algebra* **53** (1988), 15–32
- [132] Vector fields on $\mathbb{R}^{\mathbb{R}}$ in well adapted models of synthetic differential geometry; O. Bruno, *Journal of Pure and Applied Algebra* **45**, (1987), 1–14.
- [133] On a property of ideals of differentiable functions; O. Bruno, *Bulletin of the Australian Mathematical Society*, **33** (1986), 293–305.
- [134] Logical opens of exponential objects; O. Bruno, *Cahiers de Topologie et Geometrie Differentielle Categoriques*, **26-3** (1985), 311–323.