

Publications:

Journals

1. J.J.A. Rodal, D.J. Steigmann and E.A. Witmer, 1983, Numerical simulation of transient finite deformations of thin beams. *ASME J. Appl. Mech.* 50, 765-69.
2. D.J. Steigmann, 1986, The plane problem of orthotropic elastic contact. *ASME J. Appl. Mech.* 53, 473-435.
3. D.J. Steigmann, 1986, Proof of a conjecture in elastic membrane theory. *ASME J. Appl. Mech.* 53, 955-956.
4. D.J. Steigmann and A.C. Pipkin, 1988, Stability of harmonic materials in plane strain. *Quart. Appl. Math.* 46, 559-68.
5. D.J. Steigmann and A.C. Pipkin, 1989, Finite deformations of wrinkled membranes. *Quart. J. Mech. Appl. Math.* 42, 427-40.
6. D.J. Steigmann and A.C. Pipkin, 1989, Axisymmetric tension fields. *J. Appl. Math. Phys. (ZAMP)*. 40, 526-42.
7. D.J. Steigmann and A.C. Pipkin, 1989, Wrinkling of pressurized membranes. *ASME J. Appl. Mech.* 56, 624-28.
8. D.J. Steigmann, 1990, Tension-field theory. *Proc. R. Soc. Lond.* A429, 141-73.
9. D.J. Steigmann, 1990, Flexure of a pressurized membrane tube. *ASME J. Appl. Mech.* 57, 1099-1100.
10. D.J. Steigmann, 1990, Minimum-energy configurations of elastic cable networks. *Trans. Canad. Soc. Mech. Engng.* 14, 47-50.
11. D.J. Steigmann, 1991, A note on pressure potentials. *J. Elasticity.* 26, 87-93.
12. D.J. Steigmann, 1991, Analysis of a theory of elasticity for masonry solids. *J. Mech. Phys. Solids.* 39, 543-53.
13. D.J. Steigmann and A.C. Pipkin, 1991, Equilibrium of elastic nets. *Phil. Trans. R. Soc. Lond.* A335, 419-54.
14. D.J. Steigmann, 1992, Equilibrium of pre-stressed networks. *IMA J. Appl. Math.* 48, 195-215.
15. D.J. Steigmann, 1992, Cavitation in elastic membranes. *J. Elasticity.* 28, 277-87.
16. D.J. Steigmann and M.G. Faulkner, 1993, Variational theory for spatial rods. *J. Elasticity.* 33, 1-26.
17. M.G. Faulkner and D.J. Steigmann, 1993, Controllable deformations of spatial rods. *Acta Mechanica.* 101, 31-44.
18. X. Li and D.J. Steigmann, 1993, Finite plane twist of an annular membrane. *Quart. J. Mech. Appl. Math.* 46, 601-25.
19. E. Haseganu and D.J. Steigmann, 1994, Theoretical flexural response of a pressurized membrane tube. *Int. J. Solids & Structures.* 31, 27-50.
20. D. Roxburgh, D.J. Steigmann and R.J. Tait, 1994, Azimuthal shearing and transverse deflection of an annular elastic membrane. *Int. J. Engng. Sci.* 33, 27-43.
21. E. Haseganu and D.J. Steigmann, 1994, Analysis of partly wrinkled membranes by the method of dynamic relaxation. *Computational Mechanics* 14, 596-614.
22. D.J. Steigmann and D. Li, 1995, A theory of elasticity for fluid films. *Proc. R. Soc. Lond.* A449, 223-231.
23. X. Li and D.J. Steigmann, 1995, Point loads on a hemispherical elastic membrane. *Int. J. Non-linear Mech.* 30, 569-81.
24. X. Li and D.J. Steigmann, 1995, Finite deformation of a pressurized toroidal membrane. *Int. J. Non-linear Mech.* 30, 583-95.
25. D.J. Steigmann and D. Li, 1995, Energy minimizing states of capillary systems with bulk, surface and line phases. *IMA J. Appl. Math.* 55, 1-17.
26. E. Haseganu and D.J. Steigmann, 1996, Equilibrium analysis of finitely deformed elastic networks. *Computational Mechanics* 17, 359-73.
27. Li, D.Q. and Steigmann, D.J., 1996, Positive line tension as a requirement of stable equilibrium. *Colloids & Surfaces A- Physicochemical and Engineering Aspects.* 116, 25-30.

28. R.J. Tait, D.J. Steigmann and J.L. Zhong, 1996, Finite twist and extension of a cylindrical elastic membrane. *Acta Mechanica* 117, 129-43.
29. D.J. Steigmann, 1996, Variational structure of a nonlinear theory for spatial lattices. *Meccanica* 31, 441-55.
30. D.J. Steigmann and R.W. Ogden, 1997, Plane deformations of elastic solids with intrinsic boundary elasticity. *Proc. R. Soc. Lond. A* 453, 853-77.
31. D.J. Steigmann and R.W. Ogden, 1997, A necessary condition for energy minimizing plane deformations of elastic solids with intrinsic boundary elasticity. *Math. Mech. Solids* 2, 3-16.
32. A. Atai and D.J. Steigmann, 1997, On the nonlinear mechanics of discrete networks. *Arch. Appl. Mech.* 67, 303-19.
33. M. Wang and D.J. Steigmann, 1997, Small oscillations of finitely deformed elastic networks. *J. Sound & Vibration* 202, 619-31.
34. R.W. Ogden, D.J. Steigmann and D.M. Haughton, 1997, The effect of elastic surface coating on the finite deformation and bifurcation of a pressurized circular annulus. *J. Elasticity* 47, 121-45.
35. A. Atai and D.J. Steigmann, 1998, Coupled deformations of elastic curves and surfaces. *Int. J. Solids & Structures* 35, 1915-52.
36. R.W. Ogden, G. Dryburgh and D.J. Steigmann, 1998, The effect of elastic surface coating on the bending of an incompressible elastic block. *Zeitschrift für Angewandte Mathematik und Mechanik* 78, 145-48.
37. D.J. Steigmann and R.W. Ogden, 1999, Elastic surface-substrate interactions. *Proc. R. Soc. Lond. A* 455, 437-74.
38. D.J. Steigmann, 1999, On the relationship between the Cosserat and Kirchhoff-Love theories of elastic shells. *Math. Mech. Solids* 4, 275-88.
39. D.J. Steigmann, 1999, Fluid films with curvature elasticity. *Archive for Rational Mechanics and Analysis* 150, 127-52.
40. J.W. Yokota, S.A. Bekele and D.J. Steigmann, 2001, Simulating the nonlinear dynamics of an elastic cable. *AIAA Journal* 39, 504-10.
41. R.W. Ogden and D.J. Steigmann, 2002, Plane strain dynamics of elastic solids with intrinsic boundary elasticity, with application to surface wave propagation. *J. Mech. Phys. Solids* 50, 1869-96.
42. T.I. Zohdi and D.J. Steigmann, 2002, The toughening effect of microscopic filament misalignment on macroscopic ballistic fabric response. *Int. J. Fracture* 115, L9-14.
43. D.J. Steigmann, 2002, Invariants of the stretch tensors and their application to finite elasticity theory. *Math. Mech. Solids* 7, 393-404.
44. D.J. Steigmann and L.T. Wheeler, 2003, Uniqueness of equilibrium displacements in classical linear elasticity. *Math. Mech. Solids* 8, 143-49.
45. D.J. Steigmann, 2003, Irreducible function bases for simple fluids and liquid crystal films. *ZAMP* 54, 462-77.
46. D.J. Steigmann, 2003, An analysis of J.F. Bell's research on the finite twist and extension of thin-walled polycrystalline cylindrical tubes. *Meccanica* 38, 395-404.
47. D.J. Steigmann, 2003, On isotropic, frame-invariant, polyconvex strain-energy functions. *Q. J. Mech. Appl. Math.* 56, 483-91.
48. D.J. Steigmann, 2003, Frame-invariant polyconvex strain-energy functions for some anisotropic solids. *Math. Mech. Solids* 8, 497-506 (addendum: *MMS* 9, 657-59 (2004)).
49. D.J. Steigmann et al, 2003, On the variational theory of cell-membrane equilibria. *Interfaces and Free Boundaries* 5, 357-66.
50. B. Nadler and David J. Steigmann, 2003, A model for frictional slip in woven fabrics. *Comptes Rendus: Mecanique* 331, 797-804.
51. D.J. Steigmann, 2004, Equilibrium theory for magnetic elastomers and magnetoelastic membranes. *Int. J. Non-linear Mech.* 39, 1193-1216.
52. D.J. Steigmann, 2005, An infinitude of constant-energy flows of a gas. *Theoretical & Computational Fluid Dynamics* 18, 469-72.
53. D.J. Steigmann, 2005, Puncturing a thin elastic sheet. *Int. J. Non-linear Mech.* 40, 255-70.
54. B. Nadler, P. Papadopoulos and D.J. Steigmann, 2006, Multi-scale constitutive modeling and numerical analysis of fabric material. *Int. J. Solids & Structures* 43, 206-21 (corrigendum: *IJSS* 43, 6326-27, 2006).

55. D.J. Steigmann, 2006, On pseudo-rigid bodies. *Proc. R. Soc. Lond.* A462, 559-65.
56. M. Taylor and D.J. Steigmann, 2006, Entropic thermoelasticity of thin polymeric films. *Acta Mechanica* 183, 1-22.
57. B. Nadler, P. Papadopoulos and D.J. Steigmann, 2006, Convexity of the strain-energy function in a two-scale model of ideal fabrics. *J. Elasticity* 84, 223-44.
58. B. Nadler and D.J. Steigmann, 2006, Modeling the indentation, penetration and cavitation of elastic membranes. *J. Mech. Phys. Solids* 54, 2005-29.
59. D.J. Steigmann, 2007, On the frame invariance of linear elasticity theory. *ZAMP* 58, 121-36.
60. D.J. Steigmann, 2007, Thin-plate theory for large elastic deformations. *Int. J. Non-linear Mech.* 42, 233-40.
61. D.J. Steigmann, 2007, Asymptotic finite-strain thin-plate theory for elastic solids. *Computers and Mathematics with Applications* 53, 287-95.
62. M. Barham, D.J. Steigmann, M. McElfresh and R.E. Rudd, 2007, Finite deformation of a pressurized magnetoelastic membrane in a stationary dipole field. *Acta Mechanica* 191, 1-19. (erratum: *Acta Mech.* 221, pp. 383-388, 2011).
63. D.J. Steigmann and R.W. Ogden, 2007, Surface waves supported by thin-film/substrate interactions. *IMA J. Appl. Math.* 72, 730-47.
64. A. Gupta, D.J. Steigmann and J.S. Stolken, 2007, On the evolution of plasticity and incompatibility. *Math. Mech. Solids* 12, 583-610.
65. D.J. Steigmann, 2007, A simple model of the Treloar-Kearsley instability. *Math. Mech. Solids* 12, 611-22.
66. D.J. Steigmann, 2008, Two-dimensional models for the combined bending and stretching of plates and shells based on three-dimensional linear elasticity. *Int. J. Engng. Sci.* 46, 654-76.
67. A. Agrawal and D.J. Steigmann, 2008, Coexistent fluid-phase equilibria in biomembranes with bending elasticity. *J. Elasticity* 93, 63-80.
68. M. Barham, D.J. Steigmann, M. McElfresh and R.E. Rudd, 2008, Limit-point instability of a magnetoelastic membrane in a stationary magnetic field. *J. Smart Mater. Struct.* 17, 6-11.
69. D.J. Steigmann, 2009, On the formulation of balance laws for electromagnetic continua. *Math. Mech. Solids* 14, 390-402.
70. M. Taylor and D.J. Steigmann, 2009, Simulation of laminated thermoelastic membranes. *J. Thermal Stresses* 32, 448-476.
71. D.J. Steigmann, 2009, Linear theory for the bending and extension of a thin, residually stressed, fiber-reinforced lamina. *Int. J. Engng. Sci.* 47, 1367-78.
72. A. Agrawal and D.J. Steigmann, 2009, Modeling protein-mediated morphology in biomembranes. *Biomechanics and Modeling in Mechanobiology* 8, 371-79.
73. A. Agrawal and D.J. Steigmann, 2009, Boundary-value problems in the theory of lipid membranes. *Continuum Mech. Thermodyn.* 21, 57-82.
74. D.J. Steigmann, 2009, A concise derivation of membrane theory from three-dimensional nonlinear elasticity. *J. Elasticity* 97, 97-101.
75. M. Barham, D. White, D.J. Steigmann and R.E. Rudd, 2009, Finite-element modeling of the deformation of a thin magnetoelastic film compared to a membrane model. *IEEE Trans. Magnetics* 45, 4124-27.
76. M. Barham, D. White and D.J. Steigmann, 2010, Finite-element modeling of the deformation of magnetoelastic film. *J. Computational Physics.* 229, 6193-6207.
77. D.J. Steigmann, 2010, Elastic waves interacting with a thin, pre-stressed, fiber-reinforced surface film. *Int. J. Engng. Sci.* 48, 1604-09.
78. A. Gupta, D.J. Steigmann and J.S. Stolken, 2011, Aspects of the phenomenological theory of elastic-plastic deformation. *J. Elasticity* 104, 249-266.
79. J. Edmiston, N. Barton, J. Bernier, G. Johnson and D.J. Steigmann, 2011, Precision of lattice strain and orientation measurements using high energy monochromatic X-ray diffraction. *J. Appl. Crystallography* 44, 299-312.
80. A. Agrawal and D.J. Steigmann, 2011, A model for surface diffusion of trans-membrane proteins on lipid bilayers. *ZAMP* 62, 549-563.
81. D.J. Steigmann and A. Gupta, 2011, Mechanically equivalent elastic-plastic deformations and the problem of plastic spin. *Theoretical and Applied Mechanics* 38, 397-417.

82. D.J. Steigmann, 2012, Extension of Koiter's linear shell theory to materials exhibiting arbitrary symmetry. *Int. J. Engng. Sci.* 51, 216-232.
83. M. Barham, D.J. Steigmann and D. White, 2012, Magnetoelasticity of highly deformable thin films: theory and simulation. *Int. J. Non-linear Mech.* 47, 185-196.
84. D.J. Steigmann, 2012, Refined theory for linearly elastic plates: laminae and laminates. *Math. Mech. Solids* 17, 351-363. (corrigendum: *MMS* 17 (2012), 666)
85. A. Gupta and D.J. Steigmann, 2012, Plastic flow in solids with interfaces. *Mathematical Methods in the Applied Sciences* 35, 1799-1824.
86. D.J. Steigmann and R.W. Ogden, 2012, Note on residual stress, lattice orientation and dislocation density in crystalline solids. *J. Elasticity* 109, 275-283.
87. D.J. Steigmann, 2012, Theory of elastic solids reinforced with fibers resistant to extension, flexure and twist. *Int. J. Non-linear Mech.* 47, 734-742.
88. A. Atai and D.J. Steigmann, 2012, Modeling and simulation of sutured biomembranes. *Mech. Res. Comm.* 46, 34-40.
89. D.J. Steigmann, 2013, Koiter's shell theory from the perspective of three-dimensional nonlinear elasticity. *J. Elasticity* 111, 91-107.
90. G. Templet and D.J. Steigmann, 2013, Diffusion and swelling in finitely deforming elastomers. *Math. Mech. Compl. Sys.* 1, 105-128.
91. P. Rangamani, A. Agrawal, K. Mandadapu, G. Oster and D. J. Steigmann, 2013, Interaction between surface shape and intra-surface viscous flow on lipid membranes. *Biomechanics and Modeling in Mechanobiology* 12, 833-845.
92. J. Edmiston, D.J. Steigmann, G.J. Johnson and N. Barton, 2013, A model for elastic-viscoplastic deformations of crystalline solids based on material symmetry: theory and plane-strain simulations. *Int. J. Eng. Sci.* 63, 10-22.
93. D.J. Steigmann, 2013, A well-posed finite-strain model for thin elastic sheets with bending stiffness. *Math. Mech. Solids* 13, 103-112.
94. D.J. Steigmann, 2013, A model for lipid membranes with tilt and distension based on three-dimensional liquid crystal theory. *Int. J. Non-lin. Mech.* 56, 61-70. (Corrigendum: *IJNLM* 82, pg. 131, 2016).
95. D.J. Steigmann and R.W. Ogden, 2014, Classical plate buckling theory as the small-thickness limit of three-dimensional incremental elasticity. *ZAMM* 94, 7-20.
96. M. Taylor, K. Bertoldi and D.J. Steigmann, 2014, Spatial resolution of wrinkle patterns in thin elastic sheets at finite strain. *J. Mech. Phys. Solids* 62, 163-180.
97. P. Rangamani, A. Benjamani, A. Agrawal, B. Smit, D.J. Steigmann and G. Oster, 2014, Small scale membrane mechanics. *Biomechanics and Modeling in Mechanobiology* 13, 697-711.
98. J. Krishnan and D.J. Steigmann, 2014, A polyconvex framework for isotropic elastoplasticity theory. *IMA J. Applied Math.* 79, 722-38.
99. A. Atai and D.J. Steigmann, 2014, Numerical analysis of wrinkled, anisotropic, nonlinearly elastic membranes. *Mech. Res. Comm.* 57, 1-5.
100. A. Gupta and D.J. Steigmann, 2014, Plane-strain problem for elastically rigid finite plasticity. *Q. J. Mech. Appl. Math.* 67, 287-310.
101. A. de Feraudy, M. Queguineur and D.J. Steigmann, 2014, On the natural shape of a plastically deformed thin sheet. *Int. J. Non-lin. Mech.* 67, 378-381.
102. M. Tartibi, D.J. Steigmann and K. Komvopoulos, 2014, A reverse updated Lagrangian finite element formulation for determining material properties from measured force and displacement data. *Computational Mechanics* 54, 1375-1394.
103. A. Atai and D.J. Steigmann, 2014, Transient elastic-viscoplastic dynamics of thin sheets. *J. Mech. Mat. Struct.* 9-5, 557-574.
104. P. Rangamani and D.J. Steigmann, 2014, Variable tilt on lipid membranes. *Proc. Roy. Soc. London A* 470: 20140463 (doi.org/10.1098/rspa.2014.0463).
105. F. dell'Isola and D.J. Steigmann, 2015, A two-dimensional gradient-elasticity theory for woven fabrics. *J. Elasticity* 18, 113-125.
106. D.J. Steigmann, 2015, Mechanics of materially-uniform thin films. *Math. Mech. Solids* 20, 309-326.
107. C.-I. Kim and D.J. Steigmann, 2015, Distension-induced gradient capillarity in lipid membranes. *Continuum Mech. Thermodyn.* 27, 609-621.

108. M. Taylor and D.J. Steigmann, 2015, A two-dimensional peridynamic model for thin plates. *Math. Mech. Solids* 20, 998-1010.
109. P. Neff, J. Lankeit, I.-D. Ghiba, R. Martin and D.J. Steigmann, 2015, The exponentiated Hencky-logarithmic strain energy. Part 2: Coercivity, planar polyconvexity and existence of minimizers. *ZAMP* 66, 1671-1693.
110. D.J. Steigmann and F. dell'Isola, 2015, Mechanical response of fabric sheets to three-dimensional bending, twisting and stretching. *Acta Mechanica Sinica* 31, 373-382.
111. I. Giorgio, R. Grygoruk, F. dell'Isola and D.J. Steigmann, 2015, Pattern formation in the three-dimensional deformations of fibered sheets. *Mech. Res. Comm.* 69, 164-171.
112. S. Ebrahimi, D.J. Steigmann and K. Komvopoulos, 2015, Peridynamic analysis of the nanoscale friction and wear properties of amorphous carbon thin films. *J. Mech. Mat. Struct.* 10, 559-572.
113. F. dell'Isola, M. d'Agostino, A. Madeo, P. Boisse and D.J. Steigmann, 2016, Minimization of shear energy in two-dimensional continua with two orthogonal families of inextensible fibers: the case of the standard bias extension test. *J. Elasticity* 122, 131-155.
114. F. dell'Isola, D.J. Steigmann and A. Della Corte, 2016, Synthesis of fibrous complex structures: designing microstructure to deliver targeted macro-scale response. *Applied Mech. Reviews* 67(6):060804-060804-21. (doi: 10.1115/1.4032206).
115. D.J. Steigmann and A. Agrawal, 2016, Electromechanics of polarized lipid bilayers. *Math. Mech. Compl. Sys.* 4-1, 31-54. (doi: 10.2140/memocs.2016.4.31.)
116. I. Giorgio, A. Della Corte, F. dell'Isola and D.J. Steigmann, 2016, Buckling modes in pantographic lattices. *Comptes Rendus: Mecanique II B* 344, 487-501.
117. M. Tartibi, D.J. Steigmann and K. Komvopoulos, 2016, An inverse finite element method for determining residual stress fields in solids. *Comp. Mech.* 58, 797.
118. R. Sauer, T.X. Duong, K.K. Mandadapu and D.J. Steigmann, 2017, A stabilized finite element formulation for liquid shells and its application to lipid bilayers. *J. Comp. Phys.* 330, 436-466.
119. C. Goodbrake and D.J. Steigmann, 2018, Mechanics of an elastic membrane infused with a liquid. *Int. J. Mech. Sci.* 149, 487-493.
120. V. Eremeyev, F. dell'Isola, C. Boutin and D.J. Steigmann, 2018, Linear pantographic sheets: existence and uniqueness of weak solutions. *J. Elasticity* 132, 175-196.
121. J. Wang, D.J. Steigmann, F.-F. Wang, H.-H. Dai, 2018, On a consistent finite-strain plate theory of growth. *J. Mech. Phys. Solids* 111, 184-214.
122. D.J. Steigmann, 2018, Equilibrium of elastic lattice shells. *J. Engng. Math.* 109, 47-61.
123. D.J. Steigmann, 2018, Continuum theory for elastic sheets formed by inextensible crossed elasticae. *Int. J. Non-linear Mech.* 106, 324-329.
124. I. Giorgio, F. dell'Isola and D.J. Steigmann, 2018, Axisymmetric deformations of a 2nd grade elastic cylinder. *Mech. Res. Comm.* 94, 45-48.
125. M. Shirani, C. Luo and D.J. Steigmann, 2018, Cosserat elasticity of lattice shells with kinematically independent flexure and twist. *Cont. Mech. Thermodyn.* (doi.org/10.1007/s00161-018-0679-x)
126. M. Tartibi, J. Guccione and D.J. Steigmann, 2018, Diffusion and swelling in a bio-elastic cylinder. *Mech. Res. Comm.* (doi: 10.1016/j.mechrescom.2018.08.014)
127. I. Giorgio, F. dell'Isola and D.J. Steigmann, 2019, Edge effects in Hypar nets. *Comptes Rendus: Mecanique* 347, 114-123.
128. F.-F. Wang, D.J. Steigmann, H.-H. Dai, 2019, On a uniformly valid asymptotic plate theory. *Int. J. Non-Linear Mech.* 112, 117-125.
129. S. Eugster, F. dell'Isola and D.J. Steigmann, 2019, Continuum theory for mechanical metamaterials with a cubic lattice substructure. *Math. Mech. Compl. Sys.* 7, 75-98.
130. M. Taylor, M. Shirani, Y. Dabiri, J. Guccione and D.J. Steigmann, 2019, Finite elastic wrinkling deformations of incompressible fiber-reinforced plates. *Int. J. Engng. Sci.* 144 (doi.org/10.1016/j.ijengsci.2019.103138).
131. I. Giorgio, N.L. Rizzi, U. Andreaus and D.J. Steigmann, 2019, A two-dimensional continuum model of pantographic sheets moving in 3D space and accounting for the offset and relative rotations of the fibers. *Math. Mech. Compl. Sys.* 7, 311-325.

132. D.J. Steigmann, 2020, Second-grade elasticity of plastically deformed crystals. *Mech. Res. Comm.* 105, 103517 (doi.org/10.1016/j.mechrescom.2020.103517). (Corrigendum, *Mech. Res. Comm.*, 2020: doi.org/10.1016/j.mechrescom.2020.103569).
133. B. Hendrickson, M. Shirani and D.J. Steigmann, 2020, Equilibrium theory for a lipid bilayer with a conforming cytoskeletal membrane. *Math. Mech. Compl. Sys.* 8, 69-99.
134. M. Shirani and D.J. Steigmann, 2020, A Cosserat model of elastic solids reinforced by a family of curved and twisted fibers. *Symmetry* 12, 1133 (doi: 10.3390/sym12071133).
135. D.J. Steigmann, 2020, Asymptotic theory for thin two-ply shells. *Vietnam J. Mech.* 42, 269-282 (doi: 10.15625/0866-7136/15356).
136. M. Shirani, D.J. Steigmann and P. Neff, 2020, The Legendre-Hadamard condition in Cosserat elasticity theory. *Quart. J. Mech. Appl. Math.* 73, 293-303 (doi: 10.1093/qjmam/hbaa013).
137. A Agrawal and D.J. Steigmann, 2021, Asymmetric lipid bilayers from the perspective of three-dimensional liquid crystal theory. *Cont. Mech. Thermodyn.* 33, 591-602 (doi: 10.1007/s0061-020-00919-8).
138. D.J. Steigmann, 2021, Constitutive sensitivity to the gradient of plastic deformation in the mechanics of crystalline solids. *Cont. Mech. Thermodyn.* 33, 1161-1169 (doi: 10.1007/s00161-020-00959-0).
139. B. Hendrickson, M. Shirani and D.J. Steigmann, 2021, On the equations of equilibrium for asymmetric tilted lipid bilayers. *Math. Mech. Compl. Sys.* 9, 153-166.
140. M. Shirani and D.J. Steigmann, 2022, Cosserat elasticity of lattice solids. *J. Elasticity* 151, 73-88.
141. D.J. Steigmann, 2022, Gradient plasticity in isotropic solids. *Math. Mech. Solids.* 27, 1896-1912.
142. M. Shirani and D.J. Steigmann, 2022, Convexity and rank-one convexity in a Cosserat theory of fiber-reinforced elastic solids. *J. Elasticity* 154, 555-567.
143. R. McAvoy and D.J. Steigmann, 2022, Cosserat elasticity of helically wound cylinders. *J. Elasticity* 155, 205-220.
144. A. Ciallella and D.J. Steigmann, 2023, Unusual deformation patterns in a second-gradient cylindrical lattice shell: Numerical experiments. *Math. Mech. Solids.* 28, 141-153.
145. I. Giorgio, F. dell'Isola and D.J. Steigmann, 2023, Second-grade elasticity of three-dimensional pantographic lattices: Theory and numerical experiments. *Cont. Mech. Thermodyn.* doi.org/10.1007/s00161-023-01240-w.
146. M. Shirani, D.J. Steigmann and M. Birsan, 2023, Legendre-Hadamard conditions for fiber-reinforced materials with one, two or three families of fibers. *Mechanics of Materials* 184, 104745.
147. D.J. Steigmann, M. Birsan and M. Shirani, 2023, Thin shells reinforced by fibers with intrinsic flexural and torsional elasticity. *Int. J. Solids & Structures* 285, 112550.
148. M. Shirani and D.J. Steigmann, 2024, Asymptotic theory for the inextensional flexure and twist of plastically deformed thin rods. *Math. Mech. Solids* 29, 1053-1063.
149. D.J. Steigmann, 2024, Discussion of 'A general theory for anisotropic Kirchhoff-Love shells with in-plane bending of embedded fibers', by T.X. Duong, et al., *Math. Mech. Solids* 28, 1274-1317 (2023), and 'Response to the reply by Duong et al.'. *Math. Mech. Solids* 29, 1035-1037, 1045.
150. R. McAvoy and D.J. Steigmann, 2025, Incremental deformations and bifurcation of elastic solids reinforced by fibers with intrinsic extensional, flexural and torsional elasticity. *ASME J. Appl. Mech.* 92, 011006.
151. D.J. Steigmann, 2025, Lagrange multipliers at the boundary in the inextensional bending theory of thin elastic shells. *Math. Mech. Solids* 30, 211-217.
152. M. Shirani, M. Birsan and D.J. Steigmann, 2025, Quasiconvexity in a model of fiber-reinforced solids based on Cosserat elasticity theory. *Math. Mech. Solids* 30, 372-380.
153. M. Birsan, M. Shirani and D.J. Steigmann, 2025, Convexity conditions for fiber-reinforced elastic shells. *Math. Mech. Solids* 30, 2515-2535.
154. M. Birsan, M. Shirani and D.J. Steigmann, 2025, The coupled Legendre-Hadamard condition for fiber-reinforced materials: Three-dimensional solids and two-dimensional shells. *Cont. Mech. Thermodyn.* 37, 26.
155. D.J. Steigmann, 2025, Constitutively admissible gradients of plastic deformation in isotropic solids. *Math. Mech. Solids* 30, 2032-2042.

156. A. Aguiar, L. Rehm, D.J. Steigmann and M. Taylor, 2025, An asymptotic thin-plate theory derived from state-based peridynamics. *J. Peridyn. Nonlocal Model.* 7 (<https://doi.org/10.1007/s42102-025-00126-6>).
157. R. Fedele and D.J. Steigmann, 2025, Lagrangian and Eulerian formulations of second-grade elasticity via convected coordinates. *Math. Mech. Compl. Sys.* 13, 377-389.
158. D.J. Steigmann, M. Shirani and M.J. Sigaroudi, 2026, On the elastic-plastic response of hemitropic Cosserat solids. *Math. Mech. Solids* 31, 1070-1092.
159. G. La Valle, C. Soize and D.J. Steigmann, 2026, A Cauchy-Piola framework for micro-based micromorphic continua. *Math. Mech. Compl. Sys.* 14, 71-94.

Books

1. D.J. Steigmann, 2017, *Finite Elasticity Theory*. Oxford University Press.
2. D.J. Steigmann, 2022, *A Course on Plasticity Theory*. Oxford University Press.
3. D.J. Steigmann, M. Birsan and M. Shirani, 2023, *Lecture Notes on the Theory of Plates and Shells: Classical and Modern Developments*. Springer, Switzerland.
4. D.J. Steigmann and M. Shirani, 2025, *Principles of Continuum Mechanics*. World Scientific, Singapore.
5. D.J. Steigmann, *Electromagnetic Continua*. World Scientific (in preparation).

Book Chapters

1. D.J. Steigmann, Tension-field theories of elastic membranes and networks, in: *Recent Developments in Elasticity* (R.C. Batra and G.P. McSithigh, eds.), ASME-AMD vol. 124, pp. 41-49, 1991.
2. D.J. Steigmann, 'Elements of the theory of elastic surfaces', in: *Nonlinear Elasticity: Theory and Applications* (Y.B. Fu and R.W. Ogden, eds.). LMS Lecture Notes no. 283, Cambridge University Press, pp. 268-304, 2001.
3. Cheng Luo and D.J. Steigmann, 'Bending and twisting effects in the three-dimensional finite deformations of an inextensible network', in: *Developments in Shell Theory* (D. Durban, D. Givoli, J.G. Simmonds, eds.). Technion volume to commemorate the 70th birthday of A. Libai. *Advances in the Mechanics of Plates and Shells*, Kluwer Academic Publishers, pp. 213-228, 2001.
4. D.J. Steigmann, 'Eliza Haseganu's analysis of wrinkling in pressurized membranes'. Chapter 1 in *Advances in the Mechanics of Solids: in Memory of E.M. Haseganu*, vol. 15 of Stability, Vibration and Control of Systems, Series B. World Scientific, Singapore, pp. 3-16, 2006.
5. D.J. Steigmann, 'Applications of polyconvexity and strong ellipticity to nonlinear elasticity and elastic plate theory', in: *CISM Course: Applications of Poly-, Quasi-, and Rank-One Convexity in Applied Mechanics*, vol. 516 (J. Schroder and P. Neff, eds.). Springer, Wien and New York, pp. 265-299, 2010.
6. D.J. Steigmann, 'Recent developments in the theory of nonlinearly elastic plates and shells', in: *Shell Structures, Theory and Applications*, vol. 2 (W. Pietraszkiewicz and I. Krepa, eds.). Proc. 9th SSTA Conf. CRC Press, Boca Raton, pp. 19-23, 2010.
7. A. Agrawal and D.J. Steigmann, 'Mechanics of cellular membranes', in: *Computational Modeling in Biomechanics* (De et al, eds). Springer Netherlands, pp. 549-566, 2010.
8. J. Edmiston and D.J. Steigmann, 'Analysis of nonlinear electrostatic membranes', in: *CISM Course: Nonlinear Continuum Electrodynamics*, vol. 527 (R.W. Ogden and D.J. Steigmann, eds.). Springer, Wien and New York, pp. 153-180, 2011.
9. A. Gupta and D.J. Steigmann, 'Kinematics' (Chapter 1) and 'Balance Laws' (Chapter 2), in: *Continuum Mechanics* (J. Merodio and G. Saccomandi, eds.). UNESCO Eolss Publishers, October 2012.
10. D.J. Steigmann, 'Surface waves in elastic half spaces coated with crystalline films', in: *CISM Course: Dynamic Localization Phenomena in Elasticity, Acoustics and Electromagnetism*, vol. 547 (R. Craster and J. Kaplunov, eds.). Springer, Wien and New York, pp. 225-256, 2013.

11. D.J. Steigmann, 'Effects of fiber bending and twisting resistance on the mechanics of fiber-reinforced elastomers', in: *CISM Course: Nonlinear Mechanics of Soft Fibrous Tissues*, vol. 559 (L. Dorfmann and R.W. Ogden, eds.). Springer, Wien and New York, pp. 269-305, 2015.
12. D.J. Steigmann, 'Mechanics and physics of lipid bilayers', in: *CISM Course: The Role of Mechanics in the Study of Lipid Bilayers*, vol. 577 (D.J. Steigmann, ed.). Springer, Singapore, pp. 1-61, 2018.
13. S. Santapuri and D.J. Steigmann, 'Toward a nonlinear asymptotic model for thin magnetoelastic plates', in: *Generalized Models and Non-Classical Approaches in Complex Materials: I* (H. Altenbach, J. Puget, M. Rousseau, B. Collet and T. Michelitsch, eds.). Springer, N.Y., pp. 705-716, 2018.
14. S. Eugster and D.J. Steigmann, 'Variational methods in the theory of beams and lattices', in: *Encyclopedia of Continuum Mechanics* (H. Altenbach, A. Ochsner, eds.). Springer GmbH Germany. (doi: 10.1007/978-3-662-53605-6_176-1), pp.1-9, 2018.
15. D.J. Steigmann and A.S. Wineman, 'Alan Comporte Pipkin', in: *Encyclopedia of Continuum Mechanics* (H. Altenbach, A. Ochsner, eds.). Springer GmbH Germany. (doi: 10.1007/978-3-662-53605-6_368-1), pp. 1-4, 2019.
16. M. Shirani and D.J. Steigmann, 'Asymptotic derivation of nonlinear plate models from three-dimensional elasticity theory', in: *Recent Developments in the Theory of Shells*. Advanced Structured Materials, vol. 110 (H. Altenbach, J. Chroscielewski and V. Eremeyev, eds.). Springer Switzerland, pp. 591-614, 2019.
17. D.J. Steigmann, 'A primer on plasticity', in: *Constitutive Modelling of Solid Continua*. Solid Mechanics and its Applications, vol. 262 (J. Merodio and R.W. Ogden, eds.). Springer Switzerland, pp. 125-153, 2020; updated in the 2nd edition (2025), pp. 133-161.
18. F. dell'Isola, D.J. Steigmann, A. Della Corte, E. Barchiesi and M. Laudato, 'Metamaterials: What is out there and what is to come', in: *Discrete and Continuum Models for Mechanical Metamaterials* (F. dell'Isola and D.J. Steigmann, eds.). Materials Research Society and Cambridge University Press, pp. 1-51, 2020.
19. M. Shirani and D.J. Steigmann, 'Asymptotic estimate of the potential energy of a plastically deformed thin shell', in: *Analysis of Shells, Plates and Beams: A State of the Art Report*. Advanced Structured Materials, vol. 134 (H. Altenbach, N. Chinchaladze and R. Kienzler, eds.). Springer Switzerland, pp. 409-420, 2020.
20. M. Shirani and D.J. Steigmann, 'Necessary conditions for energy minimizers in a Cosserat model of fiber-reinforced elastic solids', in: *Recent Approaches in the Theory of Plates and Plate-like Structures*. Advanced Structured Materials (H. Altenbach, S. Bauer, V. Eremeyev, G. Mikhasev, N. Morozov, eds.). Springer Switzerland, pp. 253-265, 2021.
21. M. Shirani and D.J. Steigmann, 'Quasiconvexity and rank-one convexity in Cosserat elasticity theory', in: *Theoretical Analyses, Computations and Experiments of Multiscale Materials*. Advanced Structured Materials, vol. 175 (I. Giorgio, et al, eds.). Springer, Switzerland, pp. 273-283, 2022.
22. D.J. Steigmann, M. Birsan and M. Shirani, 'A Cosserat model for fiber-reinforced elastic plates', in: *Sixty Shades of Generalized Continua*. Advanced Structured Materials, vol. 170 (H. Altenbach, et al, eds.). Springer, Switzerland, pp. 663-686, 2023.

Books Edited

1. *Advances in the Mechanics of Solids: in Memory of E.M. Haseganu* (A. Guran, A.L. Smirnov, D.J. Steigmann and R. Vaillancourt, eds.), vol. 15 of Stability, Vibration and Control of Systems, Series B. World Scientific, Singapore, 2006.
2. *CISM Course: Nonlinear Continuum Electrodynamics*, vol. 527 (R.W. Ogden and D.J. Steigmann, eds.). Springer, Wien and New York, 2011.
3. *Mathematical Modelling in Solid Mechanics*, vol. 69 of Advanced Structured Materials (F. dell'Isola, M. Sofonea and D.J. Steigmann, eds.). Springer, Singapore, 2017.
4. *CISM Course: The Role of Mechanics in the Study of Lipid Bilayers*, vol. 577 (D.J. Steigmann, ed.). Springer, Singapore, 2018.
5. *Discrete and Continuum Models for Mechanical Metamaterials* (F. dell'Isola and D.J. Steigmann, eds.). Materials Research Society and Cambridge University Press, 2020.

