

## Condensed CV: David J. Steigmann

### Personal

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Citizenship: Canada and U.S.A.

### Education

-Ph.D. (1988) Brown University, Providence, R.I. (Thesis: *Tension-field Theory*. Adviser: A.C. Pipkin, Division of Applied Mathematics).

-M.Sc. (1982) M.I.T., Cambridge, MA. (Thesis: *Numerical Simulation of Transient Finite Deformations of Structures*. Adviser: E.A. Witmer, Department of Aeronautics and Astronautics).

-B.Sc. (1979) U. of Michigan, Ann Arbor, MI. (Department of Aeronautics and Astronautics).

### Appointments

July, 2005 to present: Professor, Dept. of Mechanical Engineering, U.C. Berkeley.

March, 1998 to June, 2005: Associate Professor, Dept. of Mechanical Engineering, U.C. Berkeley.

Jan., 1997 to March, 1998: Acting Assoc. Prof., Dept. of Mechanical Engineering, U.C. Berkeley.

July, 1995 to December, 1997: Professor, Department of Mechanical Engineering, University of Alberta, Canada.

July, 1991 to June, 1995: Assoc. Professor, University of Alberta.

Sept., 1988 to June, 1991: Assist. Professor, University of Alberta.

### Research Interests

-Mechanics of thin films and thin-film/substrate systems; near-surface wave propagation and energy flux

-Electromagnetic phenomena in solid mechanics; applications to thin-film/substrate problems

-Surface stress, capillary phenomena, biological cell membranes, surfactant films in multi-phase fluid emulsions

-Finite elasticity

-Variational methods and elastic stability

-Tensile (membrane) structures

-Continuum mechanics

-Nonlinear three-dimensional mechanics of fabrics

-Numerical analysis of ill-conditioned structural problems

-Thin shells

### Professional Service

**ZAMP (Zeitschrift für Angewandte Mathematik und Physik)**; Editorial Board, 1998; Solid Mechanics Editor, 1999-.

**International Journal of Non-linear Mechanics**; Editorial Board, 2001-.

**IMA J. Applied Mathematics**; Editorial Board, 1995- 2003.

**Mathematics and Mechanics of Solids**; Editorial Board, 1996- 2006; Editor-in-Chief, 2006-.

**Journal of Elasticity**; Editorial Board, 1999-.

**Trans. Canadian Soc. Mech. Engng.**; Technical Editor, 1994-96.

**CRC Book Series in Modern Mechanics and Mathematics**; Editorial Board, 2001-.

**Int. J. of Applied Mechanics and Engineering**; Editorial Board, 2002-.

### **Special Editorships**

(1) Proceedings of the mini-symposium to honor the late E. Reissner, held at the University of Edinburgh, June 1999. Vol. 51 of ZAMP. (2) Special Issue of ZAMP to honor the late E. Soos (vol. 53, no. 6). (3) Special volume of Mathematics and Mechanics of Solids to commemorate the 60th birthday of R.W. Ogden. (4) Special issue of J. Elasticity, vol. 80, 2005: 'Surface Stress in Nature and Technology'.

### **Symposia Organized**

(1) Topics in Finite Elasticity, Soc. Engng. Sci., Pullman, WA. Sept. 1998. (2) Society for Natural Philosophy, Sept. 2000 at U.C. Berkeley (Dissipative Mechanisms in Continuum Mechanics), (3) Developments in Continuum Electrodynamics, Soc. Engng. Sci., Ann Arbor, MI. Oct. 2003. (4) Surface Stress in Nature and Technology, Soc. Engng. Sci., Lincoln, NE. 2004. (5) In Memory of Ronald S. Rivlin, Soc. Engng. Sci., Penn. State University, August 2006.

### **Grants and Awards**

- Natural Sciences and Engineering Research Council of Canada (continuous support during the period 1989-1997 through *Individual Research, Strategic* grants).
- NATO Collaborative Research Grant, with R.W. Ogden of the University of Glasgow (1995-1998).
- Berkeley Junior Faculty Fellowship (1997).
- Ballistic impact response of fabrics, Powley Fund for Ballistics Research (UC Berkeley).
- Electromagnetic Response of Polymer Films Infused with Nanoscale Magnetic Particles, Lawrence Livermore National Labs.
- Statistical Testing of Aluminum, Titanium, Lexan and Composites for Transport Airplane Rotor Burst Fragment Shielding (FAA/Boeing, Oct. 2002 to Apr. 30 2004, with T. Zohdi and (the late) W. Goldsmith).
- Plasticity and Phase Transformations in Metals at Large Strain, Lawrence Livermore National Labs.