Stanford

David Barnett

Professor of Materials Science and Engineering and of Mechanical Engineering, Emeritus

Bio

BIO

Dislocations in Elastic Solids; Bulk, Surface and Interfacial Waves in Anisotropic Elastic Media; Mechanics of Piezoelectric and Piezomagnetic Materials, Modeling of transport in fuel cell materials and of AFM usage to characterize charge distributions and impedance of fuel cell media. He is the author of over 125 technical articles concerned with dislocations and waves in anisotropic elastic and piezoelectric media.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Materials Science and Engineering

HONORS AND AWARDS

- Daniel Drucker Award, ASME (2018)
- A. Cemal Eringen Award, Society for Engineering Science (2012)

PROFESSIONAL EDUCATION

- PhD, Stanford University (1967)

Publications

PUBLICATIONS

- **The pointwise Eshelby force on the interface between a transformed inclusion and its surrounding matrix** *MATHEMATICS AND MECHANICS OF SOLIDS*
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- **Properties of the Eshelby Tensor and Existence of the Equivalent Ellipsoid Solution** *Journal of the Mechanics and Physics of Solids*
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- **Remembrances of Jens Lothe (1931 -2016)** *Wave Motion*
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- **Solute Atmospheres at Dislocations** *Acta Materialia*
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- **Special Issue: Developments in Linear Elasticity Preface** *MATHEMATICS AND MECHANICS OF SOLIDS*
  Barnett, D. M.
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- **Preface to special edition of Wave Motion honoring V. I. Alshits** *Wave Motion*
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- **On the existence of Eshelby's equivalent ellipsoidal inclusion solution** *MATHEMATICS AND MECHANICS OF SOLIDS*
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  Yin, J., Barnett, D. M., Fitzgerald, S. P., Cai, W.
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- **Efficient computation of forces on dislocation segments in anisotropic elasticity** *MODELLING AND SIMULATION IN MATERIALS SCIENCE AND ENGINEERING*
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- **Formation of chiral branched nanowires by the Eshelby Twist** *NATURE NANOTECHNOLOGY*
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- **Analytic perturbation solution to the capacitance system of a hyberboloidal tip and a rough surface** *APPLIED PHYSICS LETTERS*
  Shen, Y., Barnett, D. M., Pinsky, P. M.
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- **Simulating and interpreting Kelvin probe force microscopy images on dielectrics with boundary integral equations** *REVIEW OF SCIENTIFIC INSTRUMENTS*
  Shen, Y., Barnett, D. M., Pinsky, P. M.
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- **A resolution study for electrostatic force microscopy on bimetallic samples using the boundary element method** *NANOTECHNOLOGY*
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- **Nonradiating dislocations in uniform supersonic motion in anisotropic linear elastic solids** *International Conference on Integral Methods in Science and Engineering*
  Barnett, D. M., Zimmerman, J. A.
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- **Thermal stresses and deposition patterns in layered manufacturing** *MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING*
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  Ting, T. C., Barnett, D. M.
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  Barnett, D. M., Ting, T. C., Kirchner, H. O.
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- **Bulk, surface, and interfacial waves in anisotropic linear elastic solids** *INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES*
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- **Formation and migration energies of interstitials in silicon under strain conditions** *SURFACE SCIENCE*
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- **Reciprocal relationship between the stress fields of a line force and a dislocation in anisotropic media** *PHILOSOPHICAL MAGAZINE A-PHYSICS OF CONDENSED MATTER STRUCTURE DEFECTS AND MECHANICAL PROPERTIES*
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