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*
  Gavazza, S. D., Barnett, D. M.
  2018; 23 (2): 233–39
- **Properties of the Eshelby Tensor and Existence of the Equivalent Ellipsoid Solution** *Journal of the Mechanics and Physics of Solids*
  Barnett, D. M., Cai, W.
  2018; 121: 71-80
- **Remembrances of Jens Lothe (1931 -2016)** *Wave Motion*
  Jøssang, T., Hirth, J. P., Alshits, V. I., Barnett, D. M.
  2017; 69 (3): A1-A8
- **Solute Atmospheres at Dislocations** *Acta Materialia*
  Hirth, J. P., Barnett, D. M., Hoagland, R. G.
  2017; 131: 574-593
- **Modeling a distribution of point defects as misfitting inclusions in stressed solids** *JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS*
  Cai, W., Sills, R. B., Barnett, D. M., Nix, W. D.

2014; 66: 154-171

- **Modeling a Distribution of Point Defects as Misfitting Inclusions in a Stressed Solid** *Journal of the Mechanics and Physics of Solids*
  Cai, W., Sills, R., B., Barnett, D., M., Nix, W., D.
  2014
- **Special Issue: Developments in Linear Elasticity Preface** *MATHEMATICS AND MECHANICS OF SOLIDS*
  Barnett, D. M.
  2013; 18 (2): 117-118
- **Preface to special edition of Wave Motion honoring V. I. Alshits** *Wave Motion*
  Barnett, D., M., Lothe, J.
  2013; 50: 1175-76
- **On the existence of Eshelby's equivalent ellipsoidal inclusion solution** *MATHEMATICS AND MECHANICS OF SOLIDS*
  Kuykendall, W. P., Cash, W. D., Barnett, D. M., Cai, W.
  2012; 17 (8): 840-847
- **Computing dislocation stress fields in anisotropic elastic media using fast multipole expansions** *MODELLING AND SIMULATION IN MATERIALS SCIENCE AND ENGINEERING*
  Yin, J., Barnett, D. M., Fitzgerald, S. P., Cai, W.
  2012; 20 (4)
- **Efficient computation of forces on dislocation segments in anisotropic elasticity** *MODELLING AND SIMULATION IN MATERIALS SCIENCE AND ENGINEERING*
  Yin, J., Barnett, D. M., Cai, W.
  2010; 18 (4)
- **Modeling electrostatic force microscopy for conductive and dielectric samples using the boundary element method** *ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS*
  Shen, Y., Barnett, D. M., Pinsky, P. M.
  2008; 32 (8): 682-691
- **Formation of chiral branched nanowires by the Eshelby Twist** *NATURE NANOTECHNOLOGY*
  Zhu, J., Peng, H., Marshall, A. F., Barnett, D. M., Nix, W. D., Cui, Y.
  2008; 3 (8): 477-481
- **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.
  2008; 92 (13)
- **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.
  2008; 79 (2)
- **A resolution study for electrostatic force microscopy on bimetallic samples using the boundary element method** *NANOTECHNOLOGY*
  Shen, Y., Lee, M., Lee, W., Barnett, D. M., Pinsky, P., Prinz, F. B.
  2008; 19 (3)
- **Integral equation modeling of electrostatic interactions in atomic force microscopy** *International Conference on Integral Methods in Science and Engineering (IMSE 2006)*
  Shen, Y., Barnett, D. M., Pinsky, P. M.
  BIRKHAUSER BOSTON.2008: 237–246
- **The displacement field of a triangular dislocation loop - a correction with commentary** *PHILOSOPHICAL MAGAZINE LETTERS*
  Barnett, D. M., BALLUFFI, R. W.
  2007; 87 (12): 943-944
- **Negative Poisson's ratios in anisotropic linear elastic media** *JOURNAL OF APPLIED MECHANICS-TRANSACTIONS OF THE ASME*
  Ting, T. C., Barnett, D. M.

2005; 72 (6): 929-931

- **The triple phase boundary - A mathematical model and experimental investigations for fuel cells** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  O'Hayre, R., Barnett, D. M., Prinz, F. B.
  2005; 152 (2): A439-A444
- **A Mathematical Model and Experimental Investigations of Fuel Cells** *Journal of the Electrochemical Society*
  O'Hayre, R., Barnett, D., M., Prinz, Fritz, B.
  2005; 152 (#2): A439-444
- **Waves in anisotropic elastic solids - Preface** *WAVE MOTION*
  Ting, T. C., Barnett, D. M.
  2004; 40 (4): 295-295
- **Motion and rotation of small glissile dislocation loops in stress fields** *PHYSICAL REVIEW LETTERS*
  Wolfer, W. G., Okita, T., Barnett, D. M.
  2004; 92 (8)
- **A special issue dedicated to the seventieth birthday of Professor Thomas Chi Tsai Ting - Preface** *CHINESE JOURNAL OF MECHANICS-SERIES A*
  Yeh, C. S., Barnett, D. M., Wu, K. C., Hwu, C.
  2003; 19 (1): I-I
- **Stress singularities of an inclined crack terminating at the interface between two dissimilar anisotropic media** *CHINESE JOURNAL OF MECHANICS-SERIES A*
  Kuo, C. M., Barnett, D. M.
  2003; 19 (1): 55-60
- **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.
  BIRKHAUSER BOSTON.2002: 49–52
- **Thermal stresses and deposition patterns in layered manufacturing** *MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING*
  Nickel, A. H., Barnett, D. M., Prinz, F. B.
  2001; 317 (1-2): 59-64
- **On Nix's theorem for two skew dislocations in anisotropic elastic half-spaces and bimaterials** *MATHEMATICS AND MECHANICS OF SOLIDS*
  Ting, T. C., Barnett, D. M.
  2001; 6 (1): 3-27
- **The net interaction force between two skew dislocations in an anisotropic linear elastic bimetallic medium** *NSF Symposium on Micromechanic Modeling of Industrial Materials*
  Barnett, D. M., Ting, T. C., Kirchner, H. O.
  ELSEVIER SCIENCE SA.2000: 18–24
- **Bulk, surface, and interfacial waves in anisotropic linear elastic solids** *INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES*
  Barnett, D. M.
  2000; 37 (1-2): 45-54
- **Formation and migration energies of interstitials in silicon under strain conditions** *SURFACE SCIENCE*
  Halicioglu, T., Barnett, D. M.
  1999; 441 (2-3): 265-269
- **Elastic Anisotropy** *Mechanics and Materials: Fundamentals and Linkages*
  Barnett, D., M.
  edited by Meyers, M., A., Armstrong, R., W., Kirchner, H., O. K.
  Wiley-Interscience, J. Wiley and Sons, N. Y..1999: 71–98

- **Residual stresses in layered manufacturing** *10th Solid Freeform Fabrication Symposium (SFF)*
  Nickel, A., BARNETT, D., Link, G., Prinz, F.
  UNIV TEXAS AUSTIN.1999: 239–246
- **The net interaction force between two skew dislocations in an elastically anisotropic half-space** *Symposium on Defects in Crystals Honoring John Hirth at the TMS Annual Meeting*
  Barnett, D. M.
  PERGAMON-ELSEVIER SCIENCE LTD.1998: 371–78
- **Net Interaction Force Between Two Skew Dislocations in an Elastically Anisotropic Half-Space**
  M.
  1998
- **Net Interaction Force Between Two Skew Dislocations in an Elastically Anisotropic Half-Space**
  Barnett, D., M.
  1998
- **Classifications of surface waves in anisotropic elastic materials** *WAVE MOTION*
  Ting, T. C., Barnett, D. M.
  1997; 26 (3): 207-218
- **On a reciprocal relationship between the deformation fields of a line force and a straight dislocation** *PHILOSOPHICAL MAGAZINE LETTERS*
  Chou, Y. T., Barnett, D. M.
  1997; 76 (3): 139-141
- **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*
  Chou, Y. T., Barnett, D. M.
  1997; 76 (1): 221-229
- **A proof of the equivalence of the Stroh and Lekhnitskii sextic equations for plane anisotropic elastostatics** *PHILOSOPHICAL MAGAZINE A-PHYSICS OF CONDENSED MATTER STRUCTURE DEFECTS AND MECHANICAL PROPERTIES*
  Barnett, D. M., Kirchner, H. O.
  1997; 76 (1): 231-239
- **Multiscale energy release rates in fracture of piezoelectric ceramics** *Conference on Mathematics and Control in Smart Structures - Smart Structures and Materials 1997*
  Gao, H. J., Fulton, C. C., Zhang, T. Y., Tong, P., Barnett, D. M.
  SPIE-INT SOC OPTICAL ENGINEERING.1997: 228–233
- **Diffusive surface instabilities induced by electromechanical loading** *PROCEEDINGS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
  Chien, N. Y., Gao, H. J., Herrmann, G., Barnett, D. M.
  1996; 452 (1946): 527-541
- **An invariance property of local energy release rate in a strip saturation model of piezoelectric fracture** *INTERNATIONAL JOURNAL OF FRACTURE*
  Gao, H. J., Barnett, D. M.
  1996; 79 (2): R25-R29
- **MUTUAL ATTRACTION OF A DISLOCATION TO A BIMETALLIC INTERFACE AND A THEOREM ON PROPORTIONAL ANISOTROPIC BIMETALS** *Symposium on Multiphase Elasticity and the Dundurs Parameters, at the 12th US National Congress of Theoretical and Applied Mechanics*
  Barnett, D. M., Lothe, J.
  PERGAMON-ELSEVIER SCIENCE LTD.1995: 291–301
- **"Mutual" Attraction of a Dislocation to a Bi-Metallic Interface and a Theorem on ""Proportional "" Anisotropic Bi-Metals""** *International Journal of Solids and Structures: Special Topics in the Theory of Elasticity - A Volume in Honor of Professor John Dundurs*
  Barnett, D., M., Lothe, J.
  1995; 32 (#3/4): 291-302

- **"Mutual" Attraction of a Dislocation to a Bi-Metallic Interface and a Theorem on "Proportional Anisotropic Bi-Metals"** *International Journal of Solids and Structures: Special Topics in the Theory of Elasticity - A Volume in Honor of Professor John Dundurs*
  Barnett, D., M., Lothe, J.
  1995; 32 (#3/4): 291-302
- **ON THE EXISTENCE PROBLEM FOR LOCALIZED ACOUSTIC-WAVES ON THE INTERFACE BETWEEN 2 PIEZOCRYSTALS** *WAVE MOTION*
  Alshits, V. I., Barnett, D. M., Darinskii, A. N.
  1994; 20 (3): 233-244
- **FIELDS AND TRANSFORMS FOR THIN-FILM HEADS** *IEEE TRANSACTIONS ON MAGNETICS*
  Bertero, G. A., Bertram, H. N., Barnett, D. M.
  1993; 29 (1): 67-76
- **IMAGE FORCE ON LINE DISLOCATIONS IN ANISOTROPIC ELASTIC HALF-SPACES WITH A FIXED BOUNDARY** *INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES*
  Ting, T. C., Barnett, D. M.
  1993; 30 (3): 313-323
- **CONDITIONS ADMITTING THE EXISTENCE OF TYPE-3 TRANSONIC STATES IN STABLE ANISOTROPIC LINEAR ELASTIC MEDIA** *CONF ON ELASTIC WAVES AND RELATED TOPICS HELD IN HONOUR OF PETER CHADWICK*
  Barnett, D. M., Lothe, J.
  PERGAMON-ELSEVIER SCIENCE LTD.1992: 1433–48
- **FRACTURE-MECHANICS FOR PIEZOELECTRIC CERAMICS** *JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS*
  Suo, Z., Kuo, C. M., Barnett, D. M., Willis, J. R.
  1992; 40 (4): 739-765
- **INTERFACIAL CRACK-TIP FIELD IN ANISOTROPIC ELASTIC SOLIDS** *JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS*
  Gao, H., ABBUDI, M., Barnett, D. M.
  1992; 40 (2): 393-416
- **ON THE NONEXISTENCE OF SUBSONIC BOUNDARY POLARIZED 2-COMPONENT FREE-SURFACE WAVES** *SYMP ON PROBLEMS IN STATISTICAL PHYSICS ELASTICITY AND DISLOCATION THEORY*
  Barnett, D. M.
  ROYAL SWEDISH ACAD SCIENCES.1992: 98–103
- **Conditions Admitting the Existence of Type 3 Transonic States in Stable Anisotropic Linear Elastic Media** *Journal of the Mechanics and Physics of Solids*
  Barnett, D., M.
  1992
- **CONTRIBUTIONS TO PROBLEMS IN STATISTICAL PHYSICS ELASTICITY AND DISLOCATION THEORY - OSLO, NORWAY, NOVEMBER 25-26, 1991 - PREFACE** *PHYSICA SCRIPTA*
  Jossang, T., Barnett, D. M.
  1992; T44: 7-8
- **THE BEHAVIOR OF ELASTIC SURFACE-WAVES POLARIZED IN A PLANE OF MATERIAL SYMMETRY .1. ADDENDUM** *PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
  Barnett, D. M., Chadwick, P., Lothe, J.
  1991; 433 (1889): 699-710
- **Stress Singularities of Interfacial Cracks in Bonded Piezoelectric Half-Spaces** *Modern Theory of Anisotropic Elasticity and Applications*
  Kuo, C-M., Barnett, D., M.
  edited by Wu, J., J., Ting, T., C. T.
  SIAM, Philadelphia.1991: 33–50
- **3-DIMENSIONAL COMPUTER VISUALIZATION OF THE SLOWNESS SURFACES OF ANISOTROPIC CRYSTALS** *WORKSHOP ON ANISOTROPIC ELASTICITY AND ITS APPLICATIONS*
  ABBUDI, M., Barnett, D. M.
  SIAM.1991: 290–300

- **Three-Dimensional Computer Visualization of the Slowness Surfaces of Anisotropic Crystals** *Modern Theory of Anisotropic Elasticity and Applications*
  Abbudi, M., Barnett, D., M.
  edited by Wu, J., J., Ting, T., C. T., Barnett, D., M.
  SIAM, Philadelphia.1991: 290–300
- **The Existence of One-Component Surface Waves and Exceptional Subsequent Transonic States of Types 2, 4, and E1 in Anisotropic Elastic Media** *Modern Theory of Anisotropic Elasticity and Applications*
  Barnett, D., M., Chadwick, P.
  edited by Wu, J., J., Ting, T., C. T., Barnett, D., M.
  SIAM, Philadelphia.1991: 199–214
- **ZERO CURVATURE TRANSONIC STATES AND FREE-SURFACE WAVES IN ANISOTROPIC ELASTIC MEDIA** *WAVE MOTION*
  Barnett, D. M., Lothe, J., Gundersen, S. A.
  1990; 12 (4): 341-360
- **ON THE EXISTENCE OF INTERFACIAL (STONELEY) WAVES IN BONDED PIEZOELECTRIC HALF-SPACES** *PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
  ABBUDI, M., Barnett, D. M.
  1990; 429 (1877): 587-611
- **The Search for Exceptional Waves: Tellurium Dioxide, an Example** *Applied Mechanics Reviews*
  Abbudi, M., Barnett, D., M.
  1990; 43 (#5): S354-S358
- **What We Know About First Transonic States in Anisotropic Linear Elastic Solids** *Elastic Waves and Ultrasonic Non-Destructive Evaluation*
  Barnett, D., M., Lothe, J.
  edited by Datta, S., K., Achenbach, J., D., Rajakapse, Y., S.
  North-Holland, Amsterdam.1990: 399–400
- **Surface Wave Existence Theory for the Case of Zero Curvature Transonic States** *Elastic Wave Propagation*
  Barnett, D., M., Lothe, J.
  North-Holland, Amsterdam.1989: 33–38
- **Generalized Shear Horizontal Waves**
  Gundersen, S., A., Barnett, D., M., Lothe, J.
  edited by Borissov, M., Spassov, L., Georgiev, Z.
  1989
- **SLIP WAVES ALONG THE INTERFACE BETWEEN 2 ANISOTROPIC ELASTIC HALF-SPACES IN SLIDING CONTACT** *PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
  Barnett, D. M., GAVAZZA, S. D., Lothe, J.
  1988; 415 (1849): 389-419
- **ELASTIC RELATIONSHIPS IN LAYERED COMPOSITE MEDIA WITH APPROXIMATION FOR THE CASE OF THIN-FILMS ON A THICK SUBSTRATE** *JOURNAL OF APPLIED PHYSICS*
  Townsend, P. H., Barnett, D. M., Brunner, T. A.
  1987; 62 (11): 4438-4444
- **RAYLEIGH-WAVE EXISTENCE THEORY - A SUPPLEMENTARY REMARK** *WAVE MOTION*
  Gundersen, S. A., Barnett, D. M., Lothe, J.
  1987; 9 (4): 319-321
- **ANALYSIS OF THE INTERFACIAL STRESSES PRODUCED BY A PILE-UP OF DISCRETE EDGE DISLOCATIONS IN 2 PHASE MATERIALS** *ACTA METALLURGICA*
  Ovecoglu, M. L., Barnett, D. M., Nix, W. D.
  1987; 35 (7): 1779-1789
- **ON THE EXISTENCE OF TYPE-6 TRANSONIC STATES IN LINEAR ELASTIC MEDIA OF CUBIC SYMMETRY** *PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*

Barnett, D. M., Lothe, J.
1987; 411 (1840): 251-263

- **MOVING DISCOMMENSURATIONS INTERACTING WITH DIFFUSING IMPURITIES** *PHYSICAL REVIEW B*
  Srolovitz, D. J., Eykholt, R., Barnett, D. M., HIRTH, J. P.
  1987; 35 (12): 6107-6121
- **LINE TENSION, INVERSE ENERGY PLOTS AND DISLOCATION INSTABILITIES** *SCRIPTA METALLURGICA*
  Barnett, D. M., YANEY, D. L.
  1986; 20 (5): 787-788
- **The Present Status of Existence Considerations for Acoustic Surface Waves in Anisotropic Media**
  Lothe, J., Barnett, D., M.
  1986
- **A Continuum Mechanics Approach to Interphase Problems** *Structure and Deformation of Boundaries*
  Barnett, D., M.
  edited by Subramanian, K., Imam, M., A.
  The Metallurgical Society of AIME.1986: 31–50
- **A Re-Examination of Atmospheres and Impurity Drag on Moving Dislocations** *Solute-Defect Interaction: Theory and Experiment*
  James, W., Barnett, D., M.
  edited by Saimoto, S., Purdy, G., R., Kidson, G., V.
  Pergamon Press.1986: 136–142
- **HYSTERETIC INTERNAL-FRICTION** *JOURNAL DE PHYSIQUE*
  ROBERTS, J. M., Barnett, D. M.
  1985; 46 (C-10): 199-204
- **THE DISPLACEMENT FIELD OF A TRIANGULAR DISLOCATION LOOP** *PHILOSOPHICAL MAGAZINE A-PHYSICS OF CONDENSED MATTER STRUCTURE DEFECTS AND MECHANICAL PROPERTIES*
  Barnett, D. M.
  1985; 51 (3): 383-387
- **A Dislocation Method for Solving 3-D Crack and Inclusion Problems** *Fundamentals of Deformation and Fracture (The Eshelby Memorial Symposium)*
  Wong, G., K., Barnett, D., M.
  edited by Bilby, B., A., Miller, K., J., Willis, J., R.
  Cambridge University Press.1985: 417–437
- **Interfacial (Stoneley) Waves in Bonded Anisotropic Elastic Half-Spaces**
  Barnett, D., M., Lothe, J., Musgrave, M., M., J., P., Gavazza, S., D.
  1985
- **A NOTE ON THE BOUNDARY INTEGRAL-EQUATION METHOD FOR THE SOLUTION OF 2ND ORDER ELLIPTIC-EQUATIONS** *JOURNAL OF THE AUSTRALIAN MATHEMATICAL SOCIETY SERIES B-APPLIED MATHEMATICS*
  Clements, D. L., Haselgrove, M., Barnett, D. M.
  1985; 26 (APR): 415-421
- **CONSIDERATIONS OF THE EXISTENCE OF INTERFACIAL (STONELEY) WAVES IN BONDED ANISOTROPIC ELASTIC HALF-SPACES** *PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
  Barnett, D. M., Lothe, J., GAVAZZA, S. D., MUSGRAVE, M. J.
  1985; 402 (1822): 153-166
- **FREE-SURFACE (RAYLEIGH) WAVES IN ANISOTROPIC ELASTIC HALF-SPACES - THE SURFACE IMPEDANCE METHOD** *PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
  Barnett, D. M., Lothe, J.
  1985; 402 (1822): 135-152
- **DIFFUSIONALLY MODIFIED DISLOCATION PARTICLE ELASTIC INTERACTIONS** *ACTA METALLURGICA*
  Srolovitz, D. J., Luton, M. J., PETKOVICLUTON, R., Barnett, D. M., Nix, W. D.

1984; 32 (7): 1079-1088

- **THE BINDING FORCE BETWEEN A PEIERLS-NABARRO EDGE DISLOCATION AND A FERMI-DIRAC SOLUTE ATMOSPHERE** *ACTA METALLURGICA*
  Barnett, D. M., Wong, G., Nix, W. D.
  1982; 30 (11): 2035-2041
- **THE BINDING FORCE BETWEEN AN EDGE DISLOCATION AND A FERMI DIRAC SOLUTE ATMOSPHERE** *ACTA METALLURGICA*
  Barnett, D. M., OLIVER, W. C., Nix, W. D.
  1982; 30 (3): 673-678
- **CONDITIONS FOR VALIDITY OF THE EXPRESSION DELTA-S=-(DELTA-DELTA-G/DELTA-T)T** *SCRIPTA METALLURGICA*
  POUND, G. M., Lothe, J., Nix, W. D., Barnett, D. M., DiMelfi, R. J.
  1980; 14 (3): 369-372
- **Acoustic Measurements of Stress Fields and Microstructure** *Journal of Non-Destructive Evaluation*
  Kino, G., S., Barnett, D., M.
  1980; 1 (#1): 67-77
- **The Equivalence of Two Methods for Computing the Activation Entropy for Dislocation Motion** *Acta Metallurgica*
  DiMelfi, R., J., Nix, W., D., Barnett, D., M., Pound, G., M.
  1980; 28 (#2): 231-237
- **The Conditions for the Validity of the Expression** *Scripta Metallurgica*
  Pound, G., M., Lothe, J., Nix, W., D., Barnett, D., M., DiMelfi, R., J.
  1980; 14 (#3): 369-372
- **EQUIVALENCE OF 2 METHODS FOR COMPUTING THE ACTIVATION ENTROPY FOR DISLOCATION-MOTION** *ACTA METALLURGICA*
  DiMelfi, R. J., Nix, W. D., Barnett, D. M., POUND, G. M.
  1980; 28 (2): 231-237
- **EXISTENCE OF SURFACE-WAVE SOLUTIONS IN PIEZOELECTRIC-CRYSTALS AN EXAMPLE OF NONEXISTENCE** *WAVE MOTION*
  Lothe, J., Barnett, D. M.
  1979; 1 (2): 107-112
- **Stress Fields of Dislocation Arrays at Interfaces in Bi-Crystals** *Philosophical Magazine*
  Hirth, J., P., Lothe, J., Barnett, D., M.
  1979; 40 (#1): 39-47
- **On the Anisotropic Elastic Field of a Dislocation Segment in Three Dimensions** *Philosophical Magazine*
  Bacon, D., J., Barnett, D., M., Scattergood, R., O.
  1979; 39 (#2): 231-235
- **On the Existence of Surface Wave Solutions in Piezoelectric Crystals; An Example of Non-Existence** *Wave Motion*
  Lothe, J., Barnett, D., M.
  1979; 1 (#2): 107-112
- **ACOUSTOELASTIC IMAGING OF STRESS-FIELDS** *JOURNAL OF APPLIED PHYSICS*
  Kino, G. S., Hunter, J. B., Johnson, G. C., Selfridge, A. R., Barnett, D. M., Hermann, G., Steele, C. R.
  1979; 50 (4): 2607-2613
- **STRESS-FIELDS OF DISLOCATION ARRAYS AT INTERFACES IN BICRYSTALS** *PHILOSOPHICAL MAGAZINE A-PHYSICS OF CONDENSED MATTER STRUCTURE DEFECTS AND MECHANICAL PROPERTIES*
  HIRTH, J. P., Barnett, D. M., Lothe, J.
  1979; 40 (1): 39-47
- **ANISOTROPIC ELASTIC FIELD OF A DISLOCATION SEGMENT IN 3 DIMENSIONS** *PHILOSOPHICAL MAGAZINE A-PHYSICS OF CONDENSED MATTER STRUCTURE DEFECTS AND MECHANICAL PROPERTIES*
  Bacon, D. J., Barnett, D. M., Scattergood, R. O.
  1979; 39 (2): 231-25

- **THEORETICAL DESCRIPTIONS OF CLIMB CONTROLLED STEADY-STATE CREEP AT HIGH AND INTERMEDIATE TEMPERATURES** *ACTA METALLURGICA*
  Spingarn, J. R., Barnett, D. M., Nix, W. D.
  1979; 27 (9): 1549-1561
- **CRITIQUE OF AYRES-STEIN METHOD OF PREDICTING CLEAVAGE PLANES IN METALS** *SCRIPTA METALLURGICA*
  Pharr, G. M., Barnett, D. M., Nix, W. D.
  1978; 12 (11): 973-978
- **The Anisotropic Continuum Theory of Lattice Defects** *Progress in Materials Science*
  Bacon, D., J., Barnett, BarnettD., M., Scattergood, R., O.
  edited by Chalmers, B., Christian, J., W., Massalski, T., B.
  Pergamon Press.1978: 51–262
- **The Existence of Rayleigh (Surface) Wave Solutions in Anisotropic Elastic Half-Spaces** *Modern Problems in Elastic Wave Propagation*
  Barnett, D., M., Lothe, J.
  edited by Miklowitz, J., Achenbach, J., D.
  J. Wiley and Sons, New York.1978: 445–457
- **A Critique of the Ayres-Stein Method of Predicting Cleavage Planes in Metals** *Scripta Metallurgica*
  Pharr, G., M., Barnett, D., M., Nix, W., D.
  1978; 12 (#11): 973-978
- **ANISOTROPIC CONTINUUM THEORY OF LATTICE-DEFECTS** *PROGRESS IN MATERIALS SCIENCE*
  Bacon, D. J., Barnett, D. M., Scattergood, R. O.
  1978; 23 (2-4): 51-262
- **VALIDITY OF USING CLASSICAL ELASTIC LINE-FORCE SOLUTION IN LATTICE DISLOCATION CALCULATIONS** *PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS*
  Barnett, D. M.
  1977; 84 (2): 741-746
- **The Elastic Strain Energy of Coherent Ellipsoidal Precipitates in Anisotropic Crystalline Solids** *Metallurgical Transactions*
  Lee, J., K., Barnett, D., M., Aaronson, H., I.
  1977; 8A (#6): 963-970
- **Residual Stress in Bone** *Recent Advances in Engineering Science*
  Wright, T., M., Barnett, D., M., Hayes, W., C.
  1977; 3: 25-32
- **On the Validity of Using the Classical Elastic Line Force Solution in Lattice Dislocation Calculations** *Physica Status Solidi (b)*
  Barnett, D., M.
  1977; 84 (#2): 741-746
- **FURTHER DEVELOPMENT OF THEORY FOR SURFACE-WAVES IN PIEZOELECTRIC CRYSTALS** *PHYSICA NORVEGICA*
  Lothe, J., Barnett, D. M.
  1977; 8 (4): 239-254
- **STRAIN-ENERGY INTERACTIONS TO CONCEPT AND SYMPATHETIC NUCLEATION** *SCRIPTA METALLURGICA*
  RUSSELL, K. C., Barnett, D. M., ALTSTETTER, C. J., Aaronson, H. I., Lee, J. K.
  1977; 11 (6): 485-490
- **SUFFICIENT CONDITIONS FOR IDENTIFICATION OF DEFECTS WHICH EXHIBIT NO GENERALIZED CROSS-SECTION USING COMPUTED ELECTRON-MICROGRAPHS** *PHILOSOPHICAL MAGAZINE*
  MCCONNELL, W. H., Barnett, D. M.
  1977; 35 (4): 1037-1047
- **ELASTIC STRAIN-ENERGY OF COHERENT ELLIPSOIDAL PRECIPITATES IN ANISOTROPIC CRYSTALLINE SOLIDS** *METALLURGICAL TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE*
  Lee, J. K., Barnett, D. M., Aaronson, H. I.

1977; 8 (6): 963-970

- **INTEGRAL FORMALISM FOR SURFACE-WAVES IN PIEZOELECTRIC CRYSTALS - EXISTENCE CONSIDERATIONS** *JOURNAL OF APPLIED PHYSICS*
  Lothe, J., Barnett, D. M.
  1976; 47 (5): 1799-1807
- **Applications of the Geometrical Theorems for Dislocations in Anisotropic Media**
  Asaro, R., J., Barnett, D., M.
  edited by Arsenault, R., J., Beeler, J., R., Simmons, J., A.
  1976
- **A Generalized Routine for Defect Image Simulation in TEM**
  Cooper, W., D., Hartley, C., S., Hren, J., J., Barnett, D., M.
  edited by Arsenault, R., J., Beeler, J., R., Simmons, J., A.
  1976
- **An Analysis of Thermally Activated Dislocation Motion Based on the Theory of Thermoelasticity** *Physica Status Solidi (b)*
  DiMelfi, R., J., Nix, W., D., Barnett, D., M., Holbrook, J., H., Pound, G., M.
  1976; 75 (#2): 573-582
- **The Singular Nature of the Self-Stress Field of a Plane Dislocation Loop in an Anisotropic Elastic Medium** *Physica Status Solidi (a)*
  Barnett, D., M.
  1976; 35 (#4): 1037-1047
- **The Self-Force on a Planar Dislocation Loop in an Anisotropic Linear Elastic Medium** *Journal of the Mechanics and Physics of Solids*
  Gavazza, S., D., Barnett, D., M.
  1976; 24 (#4): 171-185
- **On the Existence of Surface Wave Solutions for Anisotropic Half-Spaces with Free Surface** *Journal of Applied Physics*
  Lothe, J., Barnett, D., M.
  1976; 47 (#2): 428-433
- **A Two-Dimensional Analysis of Surface Deformation Due to Dip-Slip Faulting** *Bulletin of the Seismological Society of America*
  Freund, L., B., Barnett, D., M.
  1976; 66 (#3): 667-675
- **EXISTENCE OF SURFACE-WAVE SOLUTIONS FOR ANISOTROPIC ELASTIC HALF-SPACES WITH FREE-SURFACE** *JOURNAL OF APPLIED PHYSICS*
  Lothe, J., Barnett, D. M.
  1976; 47 (2): 428-433
- **SELF-FORCE ON A PLANAR DISLOCATION LOOP IN AN ANISOTROPIC LINEAR-ELASTIC MEDIUM** *JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS*
  GAVAZZA, S. D., Barnett, D. M.
  1976; 24 (4): 171-185
- **ANALYSIS OF ENTROPY OF THERMALLY ACTIVATED DISLOCATION-MOTION BASED ON THEORY OF THERMOELASTICITY** *PHYSICA STATUS SOLIDI B-BASIC RESEARCH*
  DiMelfi, R. J., Nix, W. D., Barnett, D. M., HOLBROOK, J. H., POUND, G. M.
  1976; 75 (2): 573-582
- **SINGULAR NATURE OF SELF-STRESS FIELD OF A PLANE DISLOCATION LOOP IN AN ANISOTROPIC ELASTIC MEDIUM** *PHYSICA STATUS SOLIDI A-APPLIED RESEARCH*
  Barnett, D. M.
  1976; 38 (2): 637-646
- **2-DIMENSIONAL ANALYSIS OF SURFACE DEFORMATION DUE TO DIP-SLIP FAULTING** *BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA*
  Freund, L. B., Barnett, D. M.
  1976; 66 (3): 667-675

- **WATSON-MCDOUGALL SHEAR - PROOF THAT WIDMANSTATTEN FERRITE CANNOT GROW MARTENSITICALLY** *SCRIPTA METALLURGICA*
  Aaronson, H. I., Hall, M. G., Barnett, D. M., Kinsman, K. R.
  1975; 9 (7): 705-712
- **The Non-Uniform Transformation Strain Problem for an Anisotropic Ellipsoidal Inclusion** *Journal of the Mechanics and Physics of Solids*
  Asaro, R., J., Barnett, D., M.
  1975; 23 (#1): 77-83
- **The Watson-McDougall Shear: Proof That Widmannstatten Ferrite Cannot Grow Martensitically** *Scripta Metallurgica*
  Aaronson, H., I., Hall, M., G., Barnett, D., G, Kinsman, K., R.
  1975; 9 (#7): 705-712
- **The Image Force on a Dislocation Loop in a Bounded Elastic Medium** *Scripta Metallurgica*
  Gavazza, S., D., Barnett, D., M.
  1975; 9 (#11): 1263-1265
- **Dislocations and Line Charges in Piezoelectric Insulators** *Physica Status Solidi (b)*
  Barnett, D., M., Lothe, J.
  1975; 67 (#1): 105-111
- **An Estimate of Strike Slip Friction Stress and Fault Depth From Surface Displacement Data** *Bulletin of the Seismological Society of America*
  Barnett, D., M., Freund, L., B.
  1975; 65 (#5): 1259-1266
- **NONUNIFORM TRANSFORMATION STRAIN PROBLEM FOR AN ANISOTROPIC ELLIPSOIDAL INCLUSION** *JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS*
  Asaro, R. J., Barnett, D. M.
  1975; 23 (1): 77-83
- **DISLOCATIONS AND LINE CHARGES IN ANISOTROPIC PIEZOELECTRIC INSULATORS** *PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS*
  Barnett, D. M., Lothe, J.
  1975; 67 (1): 105-111
- **ESTIMATE OF STRIKE-SLIP FAULT FRICTION STRESS AND FAULT DEPTH FROM SURFACE DISPLACEMENT DATA** *BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA*
  Barnett, D. M., Freund, L. B.
  1975; 65 (5): 1259-1266
- **LINE FORCE LOADINGS ON ANISOTROPIC HALF-SPACES AND WEDGES** *PHYSICA NORVEGICA*
  Barnett, D. M., Lothe, J.
  1975; 8 (1): 13-22
- **WEAKENING OF AN ELASTIC SOLID BY A RECTANGULAR ARRAY OF CRACKS** *JOURNAL OF APPLIED MECHANICS-TRANSACTIONS OF THE ASME*
  DELAMETER, W. R., Herrmann, G., Barnett, D. M.
  1975; 42 (1): 74-80
- **IMAGE FORCE ON A DISLOCATION LOOP IN A BOUNDED ELASTIC MEDIUM** *SCRIPTA METALLURGICA*
  GAVAZZA, S. D., Barnett, D. M.
  1975; 9 (11): 1263-1265
- **CONSIDERATION OF EXISTENCE OF SURFACE-WAVE (RAYLEIGH-WAVE) SOLUTIONS IN ANISOTROPIC ELASTIC CRYSTALS** *JOURNAL OF PHYSICS F-METAL PHYSICS*
  Barnett, D. M., Lothe, J.
  1974; 4 (5): 671-686
- **Creep of Boron-Aluminum Composites as Influenced by Residual Stresses, Bond Strength, and Fiber Packing Geometry** *Failure Modes in Composites II*
  Crossman, F., W., Karlak, R., F., Barnett, D., M.

edited by Fleck, J., N., Mehan, R., L.
The Metallurgical Society, AIME, New York.1974: 8 ff

- **The Strain Energy of a Coherent Ellipsoidal Precipitate** *Scripta Metallurgica*
  Barnett, D., M., Lee, J., K., Aaronson, H., I., Russell, K., C.
  1974; 8 (#12): 1447-1450
- **Comments on the Indenbom-Alshits Theory for Dislocations in Anisotropic Media** *Physica Status Solidi (b)*
  Lothe, J., Asaro, R., J., Barnett, D., M., Hirth, J., P.
  1974; 66 (#2): K79-K81
- **The Elastic Interaction Between a Screw Dislocation and a Spherical Inclusion** *International Journal of Engineering Science*
  Gavazza, S., D., Barnett, D., M.
  1974; 12 (#12): 1025-1043
- **On Some Three-Dimensional Dislocation Problems in Anisotropic Media** *Journal of Physics F: Metal Physics*
  Asaro, R., J., Barnett, D., M.
  1974; 4 (#5): L103-L105
- **An Image Force Theorem for Dislocations in Anisotropic Bi-Crystals** *Journal of Physics F: Metal Physics*
  Barnett, D., M., Lothe, J.
  1974; 4 (#10): 1618-1635
- **STRAIN ENERGY OF A COHERENT ELLIPSOIDAL PRECIPITATE** *SCRIPTA METALLURGICA*
  Barnett, D. M., Lee, J. K., Aaronson, H. I., RUSSELL, K. C.
  1974; 8 (12): 1447-1450
- **ELASTIC INTERACTION BETWEEN A SCREW DISLOCATION AND A SPHERICAL INCLUSION** *INTERNATIONAL JOURNAL OF ENGINEERING SCIENCE*
  GAVAZZA, S. D., Barnett, D. M.
  1974; 12 (12): 1025-1043
- **IMAGE FORCE THEOREM FOR DISLOCATIONS IN ANISOTROPIC BICRYSTALS** *JOURNAL OF PHYSICS F-METAL PHYSICS*
  Barnett, D. M., Lothe, J.
  1974; 4 (10): 1618-1635
- **SYNTHESIS OF SEXTIC AND INTEGRAL FORMALISM FOR DISLOCATIONS, GREENS FUNCTIONS, AND SURFACE-WAVES IN ANISOTROPIC ELASTIC SOLIDS** *PHYSICA NORVEGICA*
  Barnett, D. M., Lothe, J.
  1973; 7 (1): 13-18
- **INTERACTION FORCE BETWEEN TETRAGONAL DEFECTS AND SCREW DISLOCATIONS IN CUBIC-CRYSTALS** *ACTA METALLURGICA*
  Barnett, D. M., Nix, W. D.
  1973; 21 (8): 1157-1168
- **ELASTIC SURFACE-WAVES IN ANISOTROPIC CRYSTALS - SIMPLIFIED METHOD FOR CALCULATING RAYLEIGH VELOCITIES USING DISLOCATION THEORY** *JOURNAL OF PHYSICS F-METAL PHYSICS*
  Barnett, D. M., Lothe, J., Nishioka, K., Asaro, R. J.
  1973; 3 (6): 1083-1096
- **FURTHER SYNTHESIS OF SEXTIC AND INTEGRAL THEORIES FOR DISLOCATIONS AND LINE FORCES IN ANISOTROPIC MEDIA** *PHYSICA STATUS SOLIDI B-BASIC RESEARCH*
  Asaro, R. J., HIRTH, J. P., Barnett, D. M., Lothe, J.
  1973; 60 (1): 261-271
- **INTERACTION FORCE BETWEEN TETRAGONAL DEFECTS AND SCREW DISLOCATIONS IN CUBIC-CRYSTALS** *ACTA METALLURGICA*
  Barnett, D. M., Nix, W. D.
  1973; 21 (8): 1157-1168
- **ELASTIC SURFACE-WAVES IN ANISOTROPIC CRYSTALS - SIMPLIFIED METHOD FOR CALCULATING RAYLEIGH VELOCITIES USING DISLOCATION THEORY** *JOURNAL OF PHYSICS F-METAL PHYSICS*

Barnett, D. M., Lothe, J., Nishioka, K., Asaro, R. J.
1973; 3 (6): 1083-1096

- **The Fracture Mechanics of Slit-Like Cracks in Anisotropic Elastic Media** *Journal of the Mechanics and Physics of Solids*
  Barnett, D., M., Asaro, R., J.
  1972; 20 (#6): 353-366
- **FRACTURE MECHANICS OF SLIT-LIKE CRACKS IN ANISOTROPIC ELASTIC MEDIA** *JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS*
  Barnett, D. M., Asaro, R. J.
  1972; 20 (6): 353-?
- **EFFECTS OF ELASTIC ANISOTROPY ON DISLOCATION LINE TENSION IN METALS** *JOURNAL OF PHYSICS F-METAL PHYSICS*
  Barnett, D. M., Bacon, D. J., Asaro, R. J., GAVAZZA, S. D., SCATTERG, R. O.
  1972; 2 (5): 854-?
- **The Precise Evaluation of the Derivatives of the Anisotropic Elastic Green's Functions** *Physica Status Solidi (b)*
  Barnett, D., M.
  1972; 49 (#2): 741-748
- **The Effects of Elastic Anisotropy on Dislocation Line Tension in Metals** *Journal of Physics F: Metal Physics*
  Barnett, D., M., Asaro, R., J., Gavazza, S., D., Bacon, D., J., Scattergood, R., O.
  1972; 2 (#5): 854-864
- **On the Screw Dislocation in an Inhomogeneous Medium: The Case of Continuously Varying Elastic Constants** *International Journal of Solids and Structures*
  Barnett, D., M.
  1972; 8 (#5): 651-660
- **The Elastic Energy of a Straight Dislocation in an Infinite Anisotropic Elastic Medium** *Physica Status Solidi (b)*
  Barnett, D., M., Swanger, L., A.
  1971; 48 (#1): 419-428
- **On Nucleation of Coherent Precipitates Near Edge Dislocations** *Scripta Metallurgica*
  Barnett, D., M.
  1971; 5 (#4): 261-266
- **Series Representations of the Elastic Green's Tensor for Cubic Media** *Fundamental Aspects of Dislocation Theory*
  Barnett, D., M.
  edited by Simmons, J., A., Bullough, R., de Wit, R.
  National Bureau of Standards Special Publication 317.1970: 125–134
- **Edge Dislocation Stress Concentrations in Two-Phase Media** *Scripta Metallurgica*
  Barnett, D., M.
  1969; 3 (#8): 543-545
- **The Effect of Shear Modulus on the Stress Distribution Produced by a Planar Array of Screw Dislocations Near a Bi-Metallic Interface** *Acta Metallurgica*
  Barnett, D., M.
  1967; 15 (#4): 589-594
- **STACKED SCREW DISLOCATION ARRAYS IN AN ANISOTROPIC 2-PHASE MEDIUM** *PHYSICA STATUS SOLIDI*
  Chou, Y. T., Barnett, D. M.
  1967; 21 (1): 239-?
- **The Stresses Produced by a Screw Dislocation Pileup at a Circular Inclusion of Finite Rigidity** *Canadian Journal of Physics*
  Barnett, D., M., Tetelman, A., S.
  1967; 45: 841-863
- **Stacked Screw Dislocation Arrays in an Anisotropic Two-Phase Medium** *Physica Status Solidi*
  Chou, Y., T., Barnett, D., M.

1967; 21: 239-246

- **The Stress Distribution Produced by Screw Dislocation Pileups at Rigid Circular Cylindrical Inclusions** *Journal of the Mechanics and Physics of Solids*
  Barnett, D., M., Tetelman, A., S.
  1966; 14 (#6): 329-348

- **Non-elastic Strain Recovery of Copper Single Crystals After Small Prestrains** *Acta Metallurgica*
  Roberts, J., M., Barnett, D., M.
  1965; 13 (#9): 1027-1029

- **A Discussion of the Importance of Line Tension on Cottrell's Theory of the Sharp Yield Point** *Transactions of the Metallurgical Society of AIME*
  Barnett, D., M., Roberts, J., M.
  1963; 227 (#3): 658-664

- **A DISCUSSION OF IMPORTANCE OF LINE TENSION ON COTTRELLS THEORY OF SHARP YIELD POINT** *TRANSACTIONS OF THE METALLURGICAL SOCIETY OF AIME*
  Barnett, D. M., ROBERTS, J. M.
  1963; 227 (3): 658-?

- **Advances in the Continuum Elastic Theory of Dislocations** *Dislocation Modelling of Physical Systems*
  Barnett, D., M.
  edited by Ashby, M., F., Bullough, R., Hartley, C., S.

- **Advances in the Continuum Elastic Theory of Dislocations** *Dislocation Modelling of Physical Systems*
  Barnett, D., M.
  edited by Ashby, M., F., Bullough, R., Hartley, C., S.