ANTONIOS GIANNAKOPOULOS

Born in Athens 25/3/1961.
Married 1995.

- Professor, 2006-today.
- Associate Professor, Dept. of Civil Engineering,
  University of Thessaly, 2001- 2006.
- Senior Research Scientist, Department of Materials Science and Engineering
  MIT, USA, 1997-2001.
- Visiting Professor, Department of Materials Science and Engineering
  MIT, USA, 1995-1997.
- Lecturer, Department of Solid Mechanics
  Royal Inst. of Technology, Sweden, 1988-1990 and 1991-1996.

Academic titles:

- Dip. Eng., National Technical University of Athens, 1983.
- Masters of Science, Solid Mechanics, Brown University, USA, 1987.
- Masters of Science, Applied Mathematics, Brown University, USA, 1987.
- Ph.D., Solid Mechanics, Brown University, USA, May 1989.
- Docent, Royal Inst. of Technology, Sweden, November 1993.

Reviewer for Scientific Journals:

Journal of the American Ceramic Society, 1989.
Journal of Computational Physics, 1990.
International Journal of Solids and Structures, 1990.
International Journal of Fracture, 1991.
Journal of the Mechanics and Physics of Solids, 1993.
Acta Materialia, 1995.
Scripta Materialia, 1995.
Journal of Materials Science, 1997.

Philosophical Magazine, 1996.
Engineering Fracture Mechanics, 1996.
International Journal of Fatigue, 1998.
European Communities Directorate for Science and Development, 1994.
Thin Solid Films, 1998.
Journal of Computer-Aided Materials Design, 1999.
Advanced Engineering Materials, 1999.
Journal of Applied Physics, 1999.
Journal of Applied Mechanics, ASME, 1999.
Journal of Materials Research, 2000.
Materials Science and Research A, 2001.
International Journal of Engineering Sciences, 2002.
Computer methods in Applied Mechanics and Engineering, 2002.
Journal of Engineering Materials and Technology, ASME, 2003.
International Journal of Non-linear Mechanics, 2003.
Composites Science and Technology, 2004.
Applied Mechanics Reviews, 2004.
Computational Mechanics, 2005.
Archive of Applied Mechanics, 2006.

Deputy Editor (1998 – 2001)

- Acta Materialia
- Scripta Materialia

PhD students:

- M. Olsson, "Mechanical Modelling of Ceramics", Dept. of Solid Mechanics, Royal Institute of Technology, 1994.
- K.-F. Nilsson, "On Combined Buckling and Interfacial Crack Growth", Dept. of Solid Mechanics, Royal Institute of Technology, 1992 (with B. Storakers).
- P. Norlund, "Adaptive Finite Element Meshing in Metal Forming", Dept. of Solid Mechanics,Royal Institute of Technology, 1998 (with B. Haggblad).
- D. Burianek, "Damage Modelling in Titanium-Graphite Hybrid Laminates", Dept. of Aeronautics and Astronautics, Massachusetts Institute of Technology, 2000 (with M. Spearing).
- K. Stamoulis, “Fatigue of MEMS”, Dept. of Civil Engineering, University of Thessaly, 2007.

Master students:

1) R. Vestergaard, "Mechanics of Sharp Indentation Tests", Dept. of Solid Mechanics, Royal Institute of Technology, 1993 (with P.-L. Larsson).
2) P. Pallot, "Two-dimensional Contacts Between Graded Elastic Bodies", Dept. of Materials Science, MIT and Ecole Polytechnique, 1997 (with S. Suresh).
3) P. Birch, "A Study of Fretting Fatigue in Aircraft Components", Dept. of Materials

Science, MIT 1998 (with S. Suresh).
4) C. Chenut, "The Influence of the Roundness on the Fretting Flat Punch", Dept. of Materials Science, MIT, and Ecole Polytechnique, 1998.
5) E. Plisson, "Dynamic Sharp Indentation", Dept. of Materials Science, MIT, and Ecole Polytechnique, 1999.
6) B. P. Conner, "Mechanical and Microstructural Effects on Fretting Fatigue of Ti-6Al-4V", Dept. of Materials Science, MIT, 1998 (with S. Suresh).
9) I. Gavardinas,"Connecting far-field loading with intensity of tractions and displacements at the Mode I crack-tip for strain gradient elastic materials", Dept. of Civil Engineering, 2007

Member for PhD candidates:

1) S. Ostlund, "Rapid Crack Growth in Linear and Non-linear Materials", Dept. of Solid Mechanics, Royal Institute of Technology, 1989.
2) J. Salomonson, "Indentation Fracture of Alumina and Glass", Dept. of Mater. Science and Engng., Royal Institute of Technology, 1996.
3) J. C. Papatriantafyllou, "TRIP Steels: Modelling and Computational Techniques", Dept. of Mechanical Engineering, University of Thessaly, Greece, 2004.
4) S. Markolefas, "Integration pointwise pollution error estimates in the h- and p- versions of the finite element method for elliptic problems", National Technical University of Athens, Greece, 2004.
5) Z. F. Song, "The generalized solution to multiply connected region of two-dimensions and its application in fracture mechanics", National Tech. University of Athens, Greece, 2004.
6) E. G. Velgaki, "Crack problems in anisotropic materials under dynamic loading", National Technical University of Athens, Greece, 2006.
7) L. Spirou, "Stress analysis of human foot", Dept. of Mechanical Engineering, University of Thessaly, Greece, 2006.
8) C. G. Grenzelou, "Energy theorems in Strain-gradient theories and their applications to fracture problems", National Technical University of Athens, Greece, 2006.
9) M. Sifnaiou, "Noch and crack problems in the context of gradient elasticity theories", National Technical University of Athens, Greece, 2006.

Graduate Courses:

Royal Institute of Technology (Department of Solid Mechanics)
- Fracture Mechanics (1989)
- Thermal Stresses (1993)
- Fatigue (1994)
- Non-linear Finite Element Analysis (1992)

Massachusetts Institute of Technology (Department of Materials Science)
- Fracture Mechanics (1999, with S. Suresh)

National Technical University of Athens
- Continuum Mechanics (2003)
- Contact Mechanics (2005, 2006)

University of Thessaly
- Applied Mathematics (2004)
- Continuum Mechanics (2005)

Undergraduate courses:

University of Thessaly (2000-today)
- Technical Mechanics I
- Technical Mechanics II
- Technical Mechanics III

Royal Institute of Technology
- Strength of Materials (assistant, 1989, 1992)
- Energy Methods (assistant, 1989)

Societies:

- Technical Chamber of Greece (1984)
- Sigma Xi Society (1989)
- American Ceramic Society (1991)
- European Structural Integrity Society (1992)
- Materials Research Society (1998)
- American Society of Mechanical Engineers (1999)
- Greek Association for Computational Mechanics (2005)

Vice President Department of Civil Engineering, University of Thessaly, 2002 - 2004.

Citations 976. (ISI Web of Science, Science Citation Index, May 2005)

Founder and Director of the Laboratory for Strength of Materials and Micromechanics, (University of Thessaly, ΦΕΚ 275/2002).

Funded projects:

- 510000 SK for 1990--92 from STUF (Swedish National Board for Technical Development).
- 690000 SK for 1992--94 from TFR (Swedish Research Counsil for Engineering Sciences).
- 80000 SK for 1993 from Gosta Lundeqvist fund.
- 700000 SK for 1996--97 from TFR.
- Co-investigator in MURI program of the American Airforce, 1997-2001 (Project leader: Prof. Robert Ritchie).
- 33000 EUR for 2004-2006 (Herakleitos, Greek Ministry of Education).
- Co-investigator in Pythagoras 2001-2005 (Greek Ministry of Education).
- Co-founder, Institute for Mechatronics, Center for Science, Technology and Development of Thessaly, 2006 (Greek Ministry of Development, Budget 2,000,000 Eur).

Books:

I. Vardoulakis and A. Giannakopoulos, Technical Mechanics I, (in Greek) Symmetria Publ. Co., Athens 2004.

Book chapters:

Modelling of Toughening and its Temperature Dependence in Whisker Reinforced Ceramics, 1999, Springer – Verlag, Lecture Notes in Engineering.

Patents:

1) S. Suresh, A. E. Giannakopoulos and J. Alcala,
``Depth Sensing Indentation and Methodology for Mechanical Property Measurements", U.S. Patent Application Serial No. 08/632655, filed April 15 1996, MIT Case No. 7280. The patent has been approved (US 6,247,355) and licensed by INSTRON.

2) A. E. Giannakopoulos and S. Suresh,
``Method and Apparatus for Determination of Mechanical Properties of Functionally-Graded Materials", U.S. Patent Application Serial No. 08/632655, filed February 15 1996, MIT Case No. 7602. The patent has been approved USA Pat.-5,999,887.

3) S. Suresh, A. E. Giannakopoulos, N. P. Padture and J. Jitcharoen,
``Method and Apparatus for Determination of Mechanical Properties of Functionally-

Graded Materials", Updated filing with new results and claims, U.S. Patent Application, filed March 14 1997, MIT Case No. 7632, allowed PCT US98/05188.

4) O. Jorgensen, A. Giannakopoulos and S. Suresh, ``Layered Composite Constructions Including Controlled Mechanical Property Gradient Resistant to Indentation" U.S. Patent Application, filed June 30, 1997, MIT Case No. 7705, allowed.

5) A. E. Giannakopoulos, Y. Ramamurty and S. Suresh, ``Piezoelectric Testing Apparatus", U.S. Provisional Patent Application, filed September 16, 1997, MIT Case No. 7844.

6) S. Suresh and A. E. Giannakopoulos, ``Method and Apparatus for Determining Preexisting Stresses bases on Indentation or other Mechanical Probing of the Material, U.S. Provisional Application, allowed April 27, 2000.

7) S. Suresh, A. E. Giannakopoulos, M. Olsson, R. Thampuran, O. Jorgensen, N. Padture and J. Jitcharoen, ``Functionally-Graded Materials and the Engineering of Tribological Resistance at Surfaces", U.S. Patent 6,641,893 B1, allowed 2003.

8) S. Suresh, A. E. Giannakopoulos, N. P. Padture and J. Jitcharoen, ``Functionally-Graded Materials", European Patent Application, filed March 14 1997, MIT Case No. 7632, allowed EP 0 968 153 B1.

9) A. E. Giannakopoulos, S. Suresh, A. Rosakis and I. Blech, ``Determining Large Deformations and Stresses of Layered and Graded Structures to Include Effects of Body Forces", filed May 28, 2002, U.S. Patent Serial Number 10/157,735.

Journal papers:

1) G. Tsamasphyros and A. E. Giannakopoulos,``The mapped elements for the solution of cracked bodies", Comp. Meth. in Mech. and Engng., vol. 49, 1985, pp. 331-342.

2) G. Tsamasphyros and A. E. Giannakopoulos, ``Automatic optimum mesh around singularities using conformal mapping", Engng. Fracture Mech., vol.23, 1986, pp. 507-520.

3) G. Tsamasphyros and A. E. Giannakopoulos,``The use of conformal mapping for creating singular elements", Engng. Fracture Mech., vol. 28, 1987, pp. 55-65.

4) G. Tsamasphyros and A. E. Giannakopoulos,``The optimum finite lement grids

around crack singularities in bilinear elastoplastic materials",
Engng. Fracture Mech., vol. 32, 1989, pp. 515-522.

5) A. E. Giannakopoulos and A. J. Engels, ``Directional control in grid generation",
Journal of Computational Physics, vol. 74, 1988, pp. 422-439.

6) A. E. Giannakopoulos, ``An adaptive meshing scheme for the steady state convective diffusion problem using FEM", Computers and Structures, vol. 31, 1989, pp. 545-551.

7) A. E. Giannakopoulos, ``The return mapping method for the integration of friction constitutive relations", Computers and Structures, vol. 32, 1989, pp. 157-167.

8) M. Ortiz and A. E. Giannakopoulos, ``Maximal crack-tip shielding by microcracking", Journal of Applied Mechanics, vol. 56, 1989, pp. 279-283.

9) M. Ortiz and A. E. Giannakopoulos, ``Mixed-mode crack-tip fields in monolithic ceramics", Int. Journal of Solids and Structures, vol. 26, 1990, pp. 705-723.

10) M. Ortiz and A. E. Giannakopoulos, ``Crack propagation in monolithic ceramics under mixed mode loading", Int. Journal of Fracture, vol. 44, 1990, pp. 233-258.

11) K. Breder, K. Zeng, A. E. Giannakopoulos and D. Rowcliffe, ``Fracture toughness anisotropy of a hot pressed Al2O3/SiC composite", J. Mat. Science Letters, vol. 9, 1990, pp. 1085-1086.

12) A. E. Giannakopoulos and K. Breder, ``Synergism of toughening mechanisms in whisker-reinforced ceramic-matrix composites", J. Amer. Ceram. Society, vol. 74(1), 1991, pp. 194-202.

13) A. E. Giannakopoulos, ``Dynamic damage in certain monolithic ceramic materials", J. Appl. Mech., vol. 58, 1991, pp. 639-643.

14) A. E. Giannakopoulos and P. Gudmundson, ``The stresses around a partly microcracked hole in certain ceramic materials", Int. J. Solids and Structures, vol. 28, 1991, pp. 329-339.

15) A. E. Giannakopoulos and K.-F. Nilsson, ``The dynamic energy release rate of delaminations based on Mindlin type nonlinear plate theory". J. Appl. Mech., vol. 60, 1993, pp. 1046-1047.

16) A. E. Giannakopoulos and M. Olsson, ``Influence of the non-singular stress terms on small scale supercritical transformation toughness", J. Amer. Ceram. Soc., vol. 75(10), 1992, pp. 2761-2764.

17) K.-F. Nilsson, J. C. Thesken, A. E. Giannakopoulos and B. Storakers, ``A theoretical

investigation of buckling induced delamination growth", J. Mech. Phys. Solids, vol. 44(1), 1992, pp. 749-782.

18) M. Olsson and A. E. Giannakopoulos,``R-curve model of certain ceramic composites", Fatigue and Fracture of Engng. Materials and Structures, vol. 16(5), 1993, pp. 539-554.

19) M. Olsson and A. E. Giannakopoulos,``Microcracking of an internally pressurized ceramic ring", Acta Mater., vol. 41(8), 1993, pp. 2353-2364.

20) A. E. Giannakopoulos and M. Olsson, ``Axisymmetric deformation of transforming ceramics", Mechanics of Materials, vol. 16(3), pp.295-316.

21) A. E. Giannakopoulos, K. Breder and M. Olsson, ``Microcracking of an internally pressurized ceramic ring, Part 2: Experimental observations", Acta Mater., vol. 41(12), 1993, pp. 3535-3539.

22) A. E. Giannakopoulos, ``Energy release rate of dynamic delamination", Engng. Fracture Mechanics, vol. 47(4), 1994, pp. 465-471.

23) S. Suresh, A. E. Giannakopoulos and M. Olsson, ``Elastoplastic analysis of thermal cycling: Layered materials with sharp interfaces", J. Mech. Phys. Solids, vol. 42(6), 1994, pp. 979-1018.

24) A. E. Giannakopoulos, P.-L. Larsson and R. Vestergaard, ``Analysis of Vickers Indentation", Int. J. Solids and Structures, vol. 31(19), 1994, pp. 2670-2708.

25) A. E. Giannakopoulos, K.-F. Nilsson and G. Tsamasphyros, ``The contact problem at delamination", J. Appl. Mech., vol. 62, 1995, pp. 1-8.

26) K. Zeng, A. E. Giannakopoulos and D. Rowcliffe, ``Vickers indentation in glass, II: Comparison of finite element analysis and experiments", Acta Mater., vol. 43, 1994, pp. 1945-1960.

27) A. E. Giannakopoulos, S. Suresh, M. Finot and M. Olsson, ``Elastoplastic analysis of thermal cycling: Layered materials with compositional gradients", Acta Mater., vol. 43(4), 1995, pp. 1335-1354.

28) P.-L. Larsson, A. E. Giannakopoulos, E. Soderlund, D. Rowcliffe and R. Vestergaard, ``Analysis of Berkovich indentation", Int. J. Solids and Structures, vol. 33(2), 1996, pp. 221-248.

29) M. Olsson, A. E. Giannakopoulos and S. Suresh, ``Elastoplastic analysis of thermal cycling: Ceramic particles in metallic matrix", J. Mech. Phys. Solids, vol. 43(10), 1995, pp. 1639-1671.

30) K.-F. Nilsson and A. E. Giannakopoulos, ``A finite element analysis of configurational stability and finite growth of buckling driven delaminations", J. Mech. Phys. Solids, vol. 43(12), 1995, pp. 1983-2021.

31) K. Zeng, E. Soderlund, A. E. Giannakopoulos and D. Rowcliffe, ``Controlled indentation: A general approach to determine mechanics properties of brittle materials", Acta Mater., vol. 44(3), 1996, pp. 1127-1141.

32) A. E. Giannakopoulos and P.-L. Larsson, ``Analysis of pyramid indentation of pressure-sensitive hard metals and ceramics", Mechanics of Materials, vol. 25(1), 1997, pp. 1-35.

33) A. E. Giannakopoulos and S. Suresh, ``Indentation of solids with gradients in elastic properties: Part I. Point forces", Int. J. Solids Structures, vol. 34(19), 1997, pp. 2357-2392.

34) A. E. Giannakopoulos and S. Suresh, ``Indentation of solids with gradients in elastic properties: Part II. Axisymmetric indenters", Int. J. Solids Structures, vol. 34(19), 1997, pp. 2393-2428.

35) S. Suresh, A. E. Giannakopoulos and J. Alcala, ``Spherical indentation of compositionally graded materials: Theory and experiments", Acta Mater., vol. 45, 1997, pp. 1307-1322.

36) A. E. Giannakopoulos, ``Total deformation, plain strain contact analysis of macroscopically homogeneous compositionally graded materials with constant power-law strain hardening", J. Appl. Mech., vol. 64, 1997, pp. 853-860.

37) M. Olsson and A. E. Giannakopoulos, ``Elastoplastic analysis of layered materials under thermal loading: Edge cracks parallel to the interface", Int. Journal of Fracture, vol. 85, 1997, pp. 81-97.

38) K. Zeng, A. E. Giannakopoulos, D. Rowcliffe and P. Meier, ``Residual stress fields at the surface of sharp pyramid indentations", J. Am. Ceram. Society, vol. 81, 1998, pp. 689-694.

39) O. Jorgensen, A. E. Giannakopoulos and S. Suresh, ``Large spherical indentation of composite laminates with controlled gradients in elastic anisotropy", Int. J. Solids and Structures, vol. 35, 1998, pp. 5097-5113.

40) J. Jitcharoen, N. P. Padture, A. E. Giannakopoulos and S. Suresh, ``Hertzian-crack suppression in ceramics with elastic-modulus-graded surfaces", J. Am. Ceram. Soc., vol. 81, 1998, pp. 2301-2308.

41) A. E. Giannakopoulos and S. Suresh, ``A three-dimensional analysis of fretting fatigue", Acta Materialia, vol. 46, 1998, pp. 177-192.

42) J. Alcala, A. E. Giannakopoulos and S. Suresh, ``Continuous micro-indentation measurements of load-depth penetration curves with spherical micro-indenters and the estimation of mechanical properties", Journal of Materials Research, 1998, vol. 13, pp. 1390-1400.

43) A. E. Giannakopoulos, T. C. Lindley and S. Suresh, ``Aspects of equivalence between contact mechanics and fracture mechanics: Theoretical connections and a life-prediction methodology for fretting-fatigue", Acta Materialia, vol. 46, 1998, pp. 2955-2968.

44) P.-L. Larsson and A. E. Giannakopoulos, ``Tensile stresses and their implication to cracking at pyramid indentation of pressure-sensitive hard metals and ceramics", Materials Science and Engineering A, vol. A254, 1998, pp. 268-281.

45) P. Norlund, A. E. Giannakopoulos and B. Haggblad, ``Adaptive mesh-updating method for nonlinear finite element analysis of shells", Int. J. Numer. Methods in Engng. vol. 43, 1998, pp. 1523-1544.

46) A. E. Giannakopoulos and S. Suresh, ``Theory of indentation of piezoelectric materials", Acta Materialia, vol. 47, 1999, pp. 2153-2164.

47) U. Ramamurty, A. E. Giannakopoulos, S. Suresh and S. Sridhar, ``An experimental study of spherical indentation on piezoelectric materials", Acta Materialia, vol. 47, 1999, pp. 2417-2430.

48) S. Sridhar, A. E. Giannakopoulos, S. Suresh and U. Ramamurty, ``Electrical response during indentation of piezoelectric materials: A new method for material characterization", J. Appl. Phys., vol. 85, 1999, pp. 380-387.

49) A. E. Giannakopoulos, ``Indentation of graded substrates", Thin Solid Films, vol. 332, 1998, pp. 172-179.

50) S. Suresh and A. E. Giannakopoulos, ``A new method for estimating residual stresses by instrumented sharp indentation", Acta Materialia, vol. 46 (16), 1998, pp. 5755-5767.

51) A. Saigal, A. E. Giannakopoulos, H. E. Pettermann and S. Suresh, ``Electrical response during indentation of a 1-3 piezoelectric ceramic-polymer composite", Journal of Applied Physics, vol. 86 (1), 1999, pp. 603-606.

52) A. E. Giannakopoulos and S. Suresh, ``Determination of elastoplastic properties by instrumented sharp indentation", Scripta Materialia, vol. 40, 1999, pp. 1191-1198.

53) S. Suresh, M. Olsson, A. E. Giannakopoulos, N. Padture and J. Jitcharoen, ``Engineering the resistance to sliding-contact damage through gradients in elastic properties at contact surfaces", Acta Materialia, vol. 47, pp. 3915-3926, 1999.

54) A. E. Giannakopoulos, T. A. Venkatesh, T. C. Lindley and S. Suresh, ``The role of adhesion in contact fatigue", Acta Materialia, vol. 47, 1999, pp. 4653-4664.

55) A. E. Giannakopoulos and P. Pallot, ``Two-dimensional contact analysis of elastic graded materials", J. Mech. Phys. Solids, vol. 48, 2000, pp. 1597-1631.

56) A. E. Giannakopoulos, ``Strength analysis of spherical indentation of elastic piezoelectric materials", Journal of Applied Mechanics, vol. 67, 2000, pp. 409-416.

57) S. Sridhar, A. E. Giannakopoulos and S. Suresh, ``Mechanical and electrical responses of piezoelectric solids to conical indentation", Journal of Applied Physics, vol. 87(12), 2000, pp. 1-6.

58) A. Gouldstone, H.-J. Koh, K.-Y. Zeng, A. E. Giannakopoulos and S. Suresh, ``Discrete and continuous deformation during nanoindentation of thin films", Acta Materialia, vol. 48, 2000, pp. 2277-2395.

59) T. A. Venkatesh, K. J. Van Vliet, A. E. Giannakopoulos and S. Suresh, ``Determination of elastoplastic propeties by instrumented sharp indentation: Guidelines for property extraction", Scripta Materialia, vol. 42, 2000, pp. 833-839.

60) A. E. Giannakopoulos, T. C. Lindley, S. Suresh and C. Chenut. ``Similarities of stress concentrations in contact at round punches and fatigue at notches: Implications to fretting fatigue crack initiation", Fatigue and Fracture of Engng. Materials and Structures, vol. 23, 2000, pp. 561-571.

61) F. Gaudette, A. E. Giannakopoulos and S. Suresh, ``Interface cracks in layered materials subjected to temperature variations", International Journal of Fracture, vol. 110, 2001, pp. 325-349.

62) S. J. Lombardo, D. Bianchi, B. Bishop, A. E. Giannakopoulos, R. Goldsmith, R. Higgins, R. Pober and Suresh S., ``Forming of ceramics during firing without the application of external pressure", J. Am. Ceram. Society, vol. 82(6), 1999, pp. 1401-1408.

63) A. E. Giannakopoulos, I. Blech and S. Suresh, ``Large elastic deformation analysis of layered plates under thermal, mechanical and gravity loads", Acta mater., vol. 49, 2001, pp. 3671-3688.

64) D. C. Pender, N. Padture, A. E. Giannakopoulos and S. Suresh, ``Gradients in elastic modulus for improved contact-damage resistance. Part I: The Silicon Nitride-Oxynitride glass system", Acta mater., vol. 49, 2001, pp. 3255-3262.

65) D. C. Pender, N. Padture, A. E. Giannakopoulos and S. Suresh, ``Gradients in elastic modulus for improved contact-damage resistance. Part II: The Nitride-Silicon Carbide

system", Acta mater., vol. 49, 2001, pp. 3263-3268.

66) T. A. Venkatesh, B. P. Conner, C. S. Lee, A. E. Giannakopoulos, T. C. Lindley and S. Suresh, ``An experimental investigation of fretting fatigue in Ti-6Al-4V: The role of contact conditions and microstructure", Metallurgical and Materials Transactions, vol. 32A, 2001, pp. 1131-1146.

67) A. Saigal, A. E. Giannakopoulos and S. Suresh, ``Parametric study of the volume fraction of fibers in 1-3 PZT/ polyurethane piezoelectric composites during indentation", Ferroelectrics, vol. 255, 2001, pp. 1-12.

68) E. W. Andrews, A. E. Giannakopoulos, E. Plisson and S. Suresh, ``Analysis of dynamic sharp indentation", Int. J. Solids and Structures, vol. 39(2), 2002, pp.281-295.

69) A. E. Giannakopoulos, ``The influence of initial surface stresses on instrumented sharp indentation", Journal of Applied Mechanics,vol. 70, 2003, pp. 638-643.

70) A. E. Giannakopoulos, ``Indentation of plastically graded substrates by sharp indentors", Int. J. Solids and Structures, vol.39, 2002, pp. 2495-2515.

71) D. A. Burianek, A. Giannakopoulos and M. Spearing, ``Modeling of Facesheet Crack Growth in Titanium-Graphite Hybrid Laminates, Part I", Engineering Fracture Mechanics, vol. 70(6), 2003, pp. 775-798.

72) A. E. Giannakopoulos, E. Amanatidou and N. Aravas, ``A reciprocity theorem in linear gradient elasticity and the corresponding Saint-Venant principle", Int. J. Solids and Structures, vol. 43, 2006, pp. 3875-3894.

73) I. Vardoulakis and A. E. Giannakopoulos, `` An example of double forces taken from structural analysis", Int. J. Solids and Structures, vol. 43, 2006, pp. 4047-4062.

74) A. E. Giannakopoulos, K. Baxevanakis and A. Gouldstone, ``Finite element analysis of Volterra type of dislocations", Archives of Applied Mechanics, vol. 77, 2007, pp. 113-122.

75) A. E. Giannakopoulos, ``Elastic and viscoelastic indentation of pyramids on flat surfaces", Journal of the Mechanics and Physics of Solids, vol. 54, pp. 1305-1332, 2006.

76) G. N. Haidemenopoulos, A. D. Zervaki, P. Terezakis, J. Tzanis, A. E. Giannakopoulos and M. K. Kotouzas, ``Investigation of rolling contact fatigue in a Grade 900 A Rail Steel", Fatigue and Fracture of Engineering Materials and Structures, vol. 29, 2006, pp. 887-900.

77) A. Giannakopoulos and K. Stamoulis, ``Structural analysis of gradient elastic components". Int. J. Solids and Structures, vol.44, 2007, pp. 3440-3451.

78) A. E. Giannakopoulos and A. Parmaklis, ``The contact problem of a circular rigid punch on piezomagnetic materials". Int. J. Solids and Structures, vol. 44, 2007, pp. 4593-4612.

79) A. E. Giannakopoulos and A. Triantafyllou, ``Spherical indentation of incompressible rubber-like materials", J. Mech. Phys. Solids, to appear, 2007.

Conference papers:

1) G. Tsamasphyros and A. E. Giannakopoulos, ``The optimum mesh around crack-tip singularities", Proc. 1st Conf. Greek Society of Theor. and Appl. Mech. (IUTAM), Athens, Greece, 1983, pp. 54-59.

2) K.-F. Nilsson and A. E. Giannakopoulos, ``Finite element simulation of delamination growth", 1st Int. Conf. on Computer Aided Assessment and Control of Localized Damage (Eds: M. H. Aliabadi, C. A. Brebbia and D. J. Cartwright), Springer-Verlag, vol. 2: Non-linear Behaviour, Dynamics, Composite Materials and Industrial Applications, pp. 299-313, Southampton, UK, 1990.

3) K. Breder and A. E. Giannakopoulos, ``Erosive wear in Al2O3 exhibiting mode-I R-curve behavior", Ceram. Engng. Science Proceedings, vol. 11, 1990, pp. 1046-1060.

4) A. E. Giannakopoulos, K.-F. Nilsson and G. Tsamasphyros, ``The contact problem at delamination", 2nd Int. Conf. of Localized Damage (Eds: M. H. Aliabadi, H. Nisitani and D. J. Cartwright), CMP Elsevier, vol. 2: Computational Methods in Fracture Mechanics, pp. 495-514, Southampton, UK, 1990.

5) A. E. Giannakopoulos and B. Storakers, ``Mechanics of thin layer buckling and interface crack growth", Proc. 17th Annual Meeting of the Adhesion Society, pp. 17-20, Orlando, FL, USA, 1994.

6) M. Finot, S. Suresh, A. E. Giannakopoulos, M.Olsson and S. Sampath, ``Experimental studies of thermal cycling of graded materials", Proc. 3rd Int. Symp. on Structural and Functionally Gradient Materials, 1994, Lausanne, Switzerland.

7) M. Finot, S. Suresh and A. E. Giannakopoulos, ``Sharp interfaces versus functionally graded metal-ceramic layer: Geometrical Optimization for mechanical response", Proc. 3rd Int. Symp. on Structural and Functionally Gradient Materials, 1994,

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