

CURRICULUM VITAE

DIMITRIS L. KARABALIS

PERSONAL RECORD

Date and Place of Birth: July 29, 1954, Lefkas, Greece
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AREAS OF SPECIALIZATION

Structural Analysis and Design, Structural Dynamics, Structural Stability, Soil-Structure Interaction, Earthquake Engineering.
Solid Modeling, Finite Element Method, Boundary Element Method, Linear and Nonlinear Static and Dynamic Analysis.

DEGREES

1. Diploma in Architectural Engineering, June 1977, National Technical University of Athens, Greece.
2. M.S. in Civil Engineering, August 1980, University of Minnesota, Minneapolis, Minnesota.
3. Ph.D. in Civil Engineering, March 1984, University of Minnesota, Minneapolis, Minnesota.

HONORS

1. 2nd Panhellenic Prize in Mathematics, Greek Mathematical Society, 1972.
2. National Foundation Scholarship for Excellency in the General University Entrance Examinations, 1972.
3. Sommerfeld Graduate Fellowship 1979-1983, University of Minnesota.
4. Member of the Committee on Wood, ASCE, 1984-88.
5. Member of the Committee on Electronic Computation, ASCE, 1984-90.
6. Associate Member of the Computational Mechanics Committee, EMD, ASCE, 1989-93.
7. Member of the Editorial Board of the *Journal of Engineering Analysis with Boundary Elements*.
8. Member of the Editorial Board of the Series *Advances in Boundary Elements*.
9. Member of the Editorial Board of the Series *Advances in Earthquake Engineering*.

AFFILIATIONS

1. Member of the Technical Chamber of Greece, 1977-date.

2. Member of the Greek Society of Architects, 1977-date.
3. Member of the American Society of Civil Engineers, 1984-date.
4. Member of the Prestressed Concrete Institute, 1984-date.
5. Member of the American Academy of Mechanics, 1985-date.
6. Member of the International Association for Boundary Element Methods, 1989-date.
7. Member of the International Society for Boundary Elements, 1989-date.
8. Member of the International Association for Computer Methods and Advances in Geomechanics, 1989-date.
9. U.S. Association for Computational Mechanics, 1991- date.
10. Greek Society of Theoretical and Applied Mechanics, 1991-date.

INDUSTRIAL EXPERIENCE

1. Themelion Technical Company, Athens, Greece, Architectural Designer, June 1973 - October 1974.
2. Mercury Technical Company, Teheran, Iran, Architectural Designer, June 1975 - October 1975.
3. Margelis Technical Company, Lefkas, Greece, Architectural Designer, July 1977 - March 1978, Summer 1980.
4. LPA Group Incorporated, Columbia, South Carolina, Consultant on Bridge Analysis, Design, Evaluation, and Rating, 1989-1992.
5. Gulfstream Aerospace Corporation, Savannah, Georgia, Consultant on Stability and Dynamic Analysis, May 1992-1994.
6. Centre for Renewable Energy Sources, Wind Energy Program, Athens, Greece, Consultant on Static, Dynamic, Stability and Fatigue Analysis of Wind Turbine Structures, 1996-date.

ACADEMIC EXPERIENCE

1. Teaching Assistant, 1979-1982, Department of Civil Engineering, University of Minnesota, Minneapolis, Minnesota 55455.
2. Research Assistant, 1981-1983, Department of Civil Engineering, University of Minnesota, Minneapolis, Minnesota 55455.
3. Lecturer, September 1983 -July 1984, Department of Civil Engineering, The Ohio State University, Columbus, Ohio 43210.
Courses taught: CE-431 Structural Engineering Principles, CE-533 Timber Engineering, CE-833 Concrete Shell Structures
4. Assistant Professor, August 1984 - August 1990, Department of Civil Engineering, University of South Carolina, Columbia, South Carolina 29208.
5. Associate Professor, August 1990 - August 1993, Department of Civil Engineering, University of South Carolina, Columbia, South Carolina 29208.
Courses taught: ENGR-200 Statics, ENGR-210 Dynamics, ECIV-320 Structural Analysis I, ECIV-520 Structural Analysis II, ECIV-521 Numerical Methods in Mechanics, ENGR-723 Analysis of Thin Shells, ECIV-712 Boundary Element Methods for Engineers, ECIV-725 Advanced Analysis and Design of Structural Metals, ECIV-724 Structural Dynamics.
6. Guest Professor, June 1986 - August 1986, Institute of Soil and Rock Mechanics, University of Karlsruhe, Karlsruhe, West Germany.
7. U.S. Army Summer Faculty Research and Engineering Program, USAE Waterways Experiment Station, Vicksburg, Mississippi, May 1990 - August 1990.
8. Assistant Professor, August 1993 - 1998, Department of Civil Engineering, University of Patras, 26500 Patras, Greece.
9. Associate Professor, August 1998 - 2005, Department of Civil Engineering, University of Patras, 26500 Patras, Greece.
10. Professor, August 2005 - date, Department of Civil Engineering, University of Patras, 26500 Patras, Greece.

Courses taught: Dynamics and Vibration, Strength of Materials, Structural Stability, Theory and Applications of Vibrations, Advanced Topics on Dynamics and Vibration, Boundary Element Method, Dynamic Analysis of Structures using the Finite Element Method, Analysis of Structures with Computers.

PROFESSIONAL REGISTRATION

1. Licensed to Practice Architectural Engineering in Greece, 1977.
2. Certified for Inspection and Evaluation of Existing Bridges, June 1989.

ORGANIZATION

1. Session on "The Application of the Boundary Element Method to Structural Dynamics," 1986 Structures Congress, New Orleans, September 1986.
2. Session on "Dynamic Response of Coupled Civil Engineering Structures," 1986 Structures Congress, New Orleans, September 1986.
3. Member of the Organizing Committee of the 4th National Greek Congress on Steel Structures, University of Patras, 24-25 May, 2002.
4. Member of the Organizing Committee of the 8th HSTAM, International Congress on Mechanics, University of Patras, Patras 2007.

INVITED LECTURES

1. University of Bochum, Bochum, W. Germany, July 14, 1986.
2. University of Karlsruhe, Karlsruhe, W. Germany, July 16, 1986.
3. 10th BEM International Conference, Southampton, United Kingdom, September 6-8, 1988.
4. International Business Machines Corporation, Numerically Intensive Computing Center, Kingston, New York, October 5, 1989.
5. Westinghouse Savannah River Corporation, Systems Engineering Department, Engineering and Projects Division, Aiken, South Carolina, June 18, 1991.
6. Department of Civil Engineering, University of Patras, Patras, Greece, March 12, 1992.
7. Westinghouse Savannah River Corporation, Systems Engineering Department, Engineering and Projects Division, Aiken, South Carolina, April 8, 1992.

SEMINARS

1. USAE Waterways Experiment Station, Vicksburg, Mississippi, July 30 - August 3, 1990, "Introduction to the Boundary Element Method."
2. USAE Waterways Experiment Station, Vicksburg, Mississippi, August 20-24, 1990, "The State-of-the-Art in Current Boundary Element Research."
3. University of Kaiserslautern, Department of Civil Engineering, Kaiserslautern Germany, July 6-10, 2009, "Stability Analysis of Structures."

LIST OF PUBLICATIONS

A. Thesis

1. D.L. Karabalis, "Dynamic Response of Three-Dimensional Foundations," Ph.D. Dissertation, University of Minnesota, Minneapolis, Minnesota, March 1984.

B. Technical Reports

1. D.L. Karabalis and T.A. Kitsiou, "Laminated Wood Structural Elements for Long Spans," (in Greek) Research Report, National Technical University of Athens, Athens, April 1977.
2. D.L. Karabalis, "Plastic Design of Reinforced Concrete Frames," Structural Engineering Research Report, Department of Civil Engineering, University of Minnesota, Minneapolis, Minnesota, May 1980.
3. D.L. Karabalis, "Static and Dynamic Analysis of Linearly Tapered Beams," Structural Engineering Research Report, Department of Civil Engineering, University of Minnesota, Minneapolis, Minnesota, May 1980.
4. D.E. Beskos and D.L. Karabalis, "Dynamic Response of Three Dimensional Foundations," Final Report Part A, NSF Research Grant CEE-8024725, University of Minnesota, Minneapolis, Minnesota, 1984.
5. D.L. Karabalis, "Dynamic Analysis of Pile Foundations: Evaluation of CPGD," USAE Waterways Experiment Station, US Army Research Office, Contract No. DAAL03-86-D-0001, September 1990.
6. D.L. Karabalis, G.J. Cokkinides, and D.C. Rizos, "SRP, Seismic Records Processing Program," Westinghouse Savannah River Company, Aiken, South Carolina, Report No. C-VVR-G-00012, June 1992.
7. D.L. Karabalis and D.E. Beskos, "Nonlinear Dynamic Soil-Structure Interaction by Time Domain BEM-FEM," Joint Final Report, Collaborative Research Grant 910448, NATO Scientific and Environmental Affairs Division, 1994.
8. D.E. Beskos, D.L. Karabalis and G.D. Pavlatos, "3-D Analysis of Platanovrisi Dam" (Prepared for the Greek Power Company), Department of Civil Engineering, University of Patras, 1995.
9. D.L. Karabalis, D.C. Rizos, G.J. Cokkinides and J.L. Tassoulas, "Finite Element Transient Analysis: User's Manual" (Prepared for Westinghouse Savannah River Company), Department of Civil Engineering, University of South Carolina, March 1996.
10. D.E. Beskos, D.L. Karabalis, G. Hatzigeorgiou and C. Karamaneas, "Structural Analysis of the Tower of A 450 kW Wind Turbine" (Prepared for the Centre for Renewable Energy Sources, Wind Energy Program, Athens, Greece), Department of Civil Engineering, University of Patras, Patras, Greece, December 1996.
11. D.L. Karabalis, D.E. Beskos and J.D. Hondros, "Structural Analysis of the Tower and Design of the Foundation of a 450 kW Wind Turbine" (Prepared for Research Project EPET II, Contract #573) Department of Civil Engineering, University of Patras, Patras, Greece, December 1997.
12. D.L. Karabalis and D.E. Beskos, "Proposal for the Certification of the Tower, Foundation and Other Load Bearing Structural Components of Wind Turbines" (Prepared for the Centre for Renewable Energy Sources, Wind Energy Program, Athens, Greece) Department of Civil Engineering, University of Patras, Patras, Greece, December 1998.
13. D.L. Karabalis, D.E. Beskos, G. Hatzigeorgiou and J.D. Hondros, "Guidelines for the certification of the power transmission system of wind turbines" (Prepared for the Centre for Renewable Energy Sources, Wind Energy Program, Athens, Greece) Department of Civil Engineering, University of Patras, Patras, Greece, May 1999.
14. D.L. Karabalis and D.E. Beskos, "Contribution to the development of certification guidelines for wind turbines" (Prepared for the Centre for Renewable Energy Sources, Wind Energy Program, Athens, Greece) Department of Civil Engineering, University of Patras, Patras, Greece, January 2000.
15. D.L. Karabalis, "Seismic analysis of three-dimensional tunnels in a poroelastic medium" (Prepared for the National Agency for Research and Technology, #95 EΔ 664) Department of Civil Engineering, University of Patras, Greece, January 2001.
16. D.L. Karabalis, A.A. Dimas and D.C. Rizos, "Dynamic fluid-structure-soil interaction: Theoretical and numerical background" (Prepared for the European

- Commission, Program INDEPTH, Contract #EVG1-CT-2002-00065) Department of Civil Engineering, University of Patras, Greece, February 2003.
17. M. Crespo, J. Marti and D.L. Karabalis, "Definition of Seismic Hazard: Target Facilities and General Hazard" (Prepared for the European Commission, Program INDEPTH, Contract #EVG1-CT-2002-00065) Principia Ingenieros Consultores, Madrid, Spain, February 2003.
 18. D.L. Karabalis, T.L. Karavasilis, A.A. Dimas and D.C. Rizos, "Dynamic fluid-structure-soil interaction: application to spherical tanks" (Prepared for the European Commission, Program INDEPTH, Contract #EVG1-CT-2002-00065) Dept. of Civil Engineering, University of Patras, October 2003.
 19. D.L. Karabalis, G.C. Drosos and J.C. Drosos, "3-D nonlinear analysis of a 1/3 scale model for a composite concrete-FRP wind turbine tower: Final report" (Prepared for the European Commission Research Directorates Project MEGAWIND, No NNE5-2000-00327) Dept. of Civil Engineering, University of Patras, January 2004.
 20. J.C. Drosos, S.V. Tsinopoulos and D. L. Karabalis, "Seismic analysis of spherical tanks (existing condition) including soil-structure-fluid interaction," INDEPTH document IDP-IC-UP-2-05, Confidential - Final version, September 2004.
 21. V.P. Gregoriou, S.V. Tsinopoulos and D. L. Karabalis, "Seismic analysis of LNG tanks including soil-structure-fluid interaction," INDEPTH document IDP-IC-UP-2-04, Confidential - Final version, September 2004.
 22. J.C. Drosos, S.V. Tsinopoulos and D. L. Karabalis, "Seismic analysis of isolated spherical tanks," INDEPTH document IDP-IC-UP-2-07, Confidential – version 1, September 2004.
 23. V.P. Gregoriou, S.V. Tsinopoulos and D. L. Karabalis, "Seismic analysis of isolated LNG tanks," INDEPTH document IDP-IC-UP-2-06, Confidential – version 1, September 2004.

C. Presentations in Professional Meetings

1. D.L. Karabalis and D.E. Beskos, "Dynamic Response of 3-D Flexible Surface Foundations by Time Domain Boundary and Finite Element Methods," ASCE National Convention, Atlanta, Georgia, May 1984.
2. D.L. Karabalis and D.E. Beskos, "Dynamic Response of 3-D Rigid Embedded Foundations by Time Domain Boundary Element Method," Joint ASCE/ASME Mechanics Specialty Conference, University of New Mexico, Albuquerque, New Mexico, June 1985.
3. A.P. Gaitanaros and D.L. Karabalis, "Dynamic Response of 3-D Flexible Embedded Foundations by Boundary and Finite Element Methods, " ASCE National Convention, Seattle, Washington, April 1986.
4. D.L. Karabalis, "Soil-Structure-Soil Interaction by Time Domain Boundary Element Method," Symposium on Advanced Boundary Element Methods: Applications in Solid and Fluid Mechanics, San Antonio, Texas, April 1987.
5. D.L. Karabalis and D.C. Rizos, "An Advanced Direct Time Domain BEM for 3-D Elastodynamic Problems," International Conference on Computational Engineering Science (ICES '92), Hong Kong, December 17-22, 1992.
6. D.L. Karabalis, "Applications of the Boundary Element Method to 3-D Dynamic Soil-Structure Interaction Problems," ASCE South Carolina Section Spring Meeting 1993, Charleston, South Carolina.
7. D.L. Karabalis, "Dynamic Through the Soil Interaction of Adjacent Foundations and Structures", Earthquake Resistant Engineering Structures 96, Thessaloniki, Greece, October 30 - November 1, 1996.

D. Conference Proceedings

1. C.C. Spyrakos, D.L. Karabalis and D.E. Beskos, "Earthquake Response of Rigid Foundations by the Time Domain Boundary Element Method," pp. 170-173, in: W.F. Chen and A.D.M. Lewis (eds) *Recent Advances in Engineering Mechanics and Their Impact on Civil Engineering Practice* (ASCE, New York, 1983).
2. D.L. Karabalis and D.E. Beskos, "Earthquake Response of Foundations by the Boundary Element Method," pp. 769-776, Proceedings of the Eighth World Conference of Earthquake Engineering, San Francisco, California, July 1984.
3. D.L. Karabalis, C.C. Spyrakos and D.E. Beskos, "Dynamic Response of Surface Foundations by Time Domain Boundary Element Method," pp. 19-24, in D. E. Beskos, T. Krauthammer and I. Vardoulakis, Eds., *Dynamic Soil-Structure Interaction* (A. A. Balkema 1984).
4. M. Mohammadi and D.L. Karabalis, "Dynamic Soil-Structure Interaction by the Boundary Element Method: A Comparison Study," pp. 220-231, in: K. M. Will, Ed., *Electronic Computation* (ASCE 1986).
5. D.L. Karabalis and M. Mohammadi, "The Application of the Boundary Element Method to Dynamic Soil-Structure Interaction Problems: Computational Aspects," pp. 321-328, in: W.F. Ranson and J.M. Biedenbach (eds), *Proceedings 1986 Southeastern Conference on Theoretical and Applied Mechanics* (SECTAM XIII) (College of Engineering, University of South Carolina, Columbia, 1986).
6. A.P. Gaitanaros and D.L. Karabalis, "3-D Flexible Embedded Machine Foundations by the BEM and the FEM," pp. 81-96, in: D. L. Karabalis, Ed., *Recent Applications in Computational Mechanics*, (ASCE, New York, 1986).
7. D.L. Karabalis and M. Mohammadi, "Foundation-Soil-Foundation Interaction: An Application to Railway Problems," pp. 75-87, in: C. A. Brebbia, Ed., *Boundary Elements X, Vol. 4: Geomechanics, Wave Propagation and Vibrations* (Computational Mechanics Publications, Southampton, 1988).
8. D.L. Karabalis (Invited Paper), "Dynamic Soil-Structure Interaction by BEM," pp. 351-374, in: C. A. Brebbia, Ed., *Boundary Elements X, Vol. 4: Geomechanics, Wave Propagation and Vibrations* (Computational Mechanics Publications, Southampton, 1988).
9. D.L. Karabalis and A.P. Gaitanaros, "Uplift and Slippage of 3-D Rigid or Flexible Surface Foundations Using A Direct Time Domain BEM-FEM," pp. 501-510, in: M. Tanaka and T. A. Cruse, Eds., *Boundary Element Methods in Applied Mechanics* (Pergamon Press 1988).
10. D.L. Karabalis and C.-F.D. Huang, "Kinematic and Inertial Soil-Structure Interaction by Time Domain BEM," pp. 359-374, in: C. A. Brebbia and J. J. Connor, Eds., *Advances in Boundary Elements, Vol. 3: Stress Analysis* (Computational Mechanics Publications, Southampton, 1989).
11. D.L. Karabalis, "Efficient Integration of Stokes Fundamental Solutions - Applications to A Time Domain BEM," pp. 324-335, in: B.S. Annigeri and K. Tseng (eds), *Boundary Element Methods in Engineering* (Springer-Verlag, Berlin, 1990)
12. G.J. Cokkinides and D.L. Karabalis, "Application of a Simplified Time Domain BEM and Animated Graphics to Dynamic Soil-Foundation Interaction Problems," pp. 67-75, in: S.V. Hanagud, M.P. Kamat, and C.E. Ueng (eds), *Developments in Theoretical and Applied Mechanics, Vol. XV* (College of Engineering, Georgia Institute of Technology, Atlanta, 1990)
13. D.L. Karabalis (Invited Paper), "A Review of Recent Applications of 3-D Time Domain BEM to Dynamic Soil-Foundation Interaction Problems," pp. 161-173, in: A. H.-D. Cheng *et al.*, Eds., *Computational Engineering with Boundary Elements, Vol. 2: Solid and Computational Problems* (Computational Mechanics Publications, Southampton, 1990).
14. D.Rizos, M.E. Meadows, and D.L. Karabalis, "A Model for Surface Water-Groundwater Integration on A Barrier Island," ASCE National Conference on Irrigation and Drainage Engineering, Honolulu, Hawaii, July 22-26, 1991.
15. D.L. Karabalis and M. Mohammadi, "3-D Foundation-Soil-Foundation Dynamics by Frequency Domain BEM," pp. 447-456, in: C.A. Brebbia and G.S. Gipson (eds),

- Boundary Elements XIII* (Computational Mechanics Publications, Southampton, 1991).
16. D.C. Rizos and D.L. Karabalis, "2-D Steady-State and Transient Analysis of Salt Water Intrusion into Coastal Aquifers by Direct Time Domain BEM," pp. 309-315, in: C.A. Brebbia and G.S. Gipson (eds), *Boundary Elements XIII* (Computational Mechanics Publications, Southampton, 1991).
 17. D.C. Rizos, D.L. Karabalis and J. Antonopoulos, "A Parametric Salt Water Intrusion Study for Coastal Aquifers Adjacent to the Gulf of Corinth," pp. 963-970, Proceedings 1st National Congress on Computational Mechanics Volume II (University of Patras Press, Patras, Greece, 1992).
 18. D.L. Karabalis and D.C. Rizos, "An Advanced Direct Time Domain Boundary Element Method for 3-D Elastodynamic Problems," pp. 347-361, in: C.A. Brebbia and J.J. Rencis (eds) *Boundary Elements XV Vol. 2: Stress Analysis* (Computational Mechanics Publications, Southampton, 1993).
 19. D.L. Karabalis and C.-F.D. Huang, "3-D Foundation-Soil-Foundation Interaction," pp. 197-209, in: C.A. Brebbia and A.J. Kassab (eds), *Boundary Element Technology IX* (BETECH 94) (Computational Mechanics Publications, Southampton, 1994).
 20. D.L. Karabalis, D.C. Rizos and D.E. Beskos, "Dynamic Analysis of 3-D Foundations," pp. 140-162 in: I.C. Jong and F.A. Akl (eds) *Developments in Theoretical and Applied Mechanics Volume XVII* (Louisiana Tech Univ. and Univ. of Arkansas, 1994).
 21. D.L. Karabalis and C.-F.D. Huang, "Dynamic Analysis of 3-D Foundations with Internal Holes by Time Domain Boundary Element Method," pp. 331-339, Vol.1, in: S.A. Savidis (ed.) *Earthquake Resistant Construction and Design-Second Conference* (ERCAD Berlin 94) (A.A. Balkema, Rotterdam, 1994).
 22. D.L. Karabalis, G.J. Cokkinides, D.C. Rizos, J.S. Mulliken and R. Chen, "An Interactive Computer Code for Generation of Artificial Earthquake Records," pp. 1115-1122 in: K. Khozeimeh (ed.) *Computing in Civil Engineering* (ASCE, New York, 1994).
 23. G.D. Pavlatos, D.E. Beskos and D.L. Karabalis, "Dynamic Response of 2-D Elastoplastic Structures by A BEM/FEM Scheme", pp. 495-504, in: C.A. Brebbia (ed.) *Boundary Element Method XVI* (Computational Mechanics Publications, Southampton, 1994).
 24. G.D. Pavlatos, D.E. Beskos and D.L. Karabalis, "Dynamic Soil-Structure Interaction: Nonlinear Material Behaviour", pp. 23-29, in: M Papadrakakis and B.H.V. Topping (eds) *Advances in Simulation and Interaction Techniques* (CIVIL-COMP Ltd, Edimburgh, 1994).
 25. J.S. Mulliken and D.L. Karabalis, "Discrete Model for Foundation-Soil-Foundation Interaction", pp. 501-508, in: A.S. Cakmak and C.A. Brebbia (eds) *Soil Dynamics and Earthquake Engineering VII* (Computational Mechanics Publications, Southampton, 1995).
 26. D.C. Rizos and D.L. Karabalis, "Applications of an Advanced Time Domain BEM to 3-D Problems in Geomechanics", pp. 3080-3085, in: S.N. Atluri, G. Yagawa and T.A. Cruse (eds) *Computational Mechanics '95: Theory and Applications* (Springer-Verlag, Berlin, 1995).
 27. D.L. Karabalis and D.C. Rizos, "On the efficiency and accuracy of a new advanced time domain BEM for 3-D elastodynamics", pp. 477-478, in: D. Hui and S. Michaelides (eds) *SES'95, Society of Engineering Science 32nd Annual Technical Meeting, October 29-November 1, 1995, New Orleans* (College of Engineering, University of New Orleans and School of Engineering, Tulane University, New Orleans, 1995).
 28. D. Nale, D.L. Karabalis, J.R. Dickerson and M. Sutton, "Prediction and minimization of computed error in elastic stress analysis due to random measurement errors on the boundary", pp. 257-263, in: R.C. Ertekin *et al.* (eds) *Boundary Element Technology XI*, (Computational Mechanics Publications, Southampton, 1996).

29. D.L. Karabalis and D.C. Rizos, "Dynamic 3-D through-the-soil interaction of adjacent surface or buried structures", pp. 180-183, in: Y.K. Lin and T.C. Su (eds) *Engineering Mechanics Proceedings of the 11th Conference, Volume 1* (American Society of Civil Engineering, New York, 1996).
30. D.C. Rizos, D.L. Karabalis, G.J. Cokkinides, J.L. Tassoulas and J.S. Mulliken "Finite Element Transient Analysis (FETA) of solids and structures including soil-fluid-structure interaction" pp. 480-486, in: J. Vanegas and P. Chinowsky (eds) *Computing in Civil Engineering* (American Society of Civil Engineers, New York, 1996).
31. D.C. Rizos and D.L. Karabalis, "Transient analysis of 3-D inclusions in infinite or semi-infinite domains," Vol. I, pp. 348-355, in: D.A. Sotiropoulos and D.E. Beskos (eds) *Proceedings 2nd National Congress on Computational Mechanics* (Technical University of Crete, Chania, Greece, 1996).
32. D.L. Karabalis and M. Mohammadi, "3-D dynamic foundation-soil-foundation interaction on a layered soil medium," pp. 73-80, in: B.H.V. Topping (ed.) *Advances in Boundary Element Methods* (Civil-Comp Press, Edinburgh, 1996).
33. D.C. Rizos, D.L. Karabalis, G.J. Cokkinides, J.L. Tassoulas and J.S. Mulliken "Finite Element Transient Analysis (FETA) of solids and structures including soil-fluid-structure interaction," pp. 221-226, in: B.H.V. Topping (ed.) *Advances in Computational Methods for Simulation* (Civil-Comp Press, Edinburgh, 1996).
34. D.C. Rizos and D.L. Karabalis, "A time domain BEM for 3-D elastodynamic analysis using the B-spline fundamental solutions," pp. 119-138, in: F.G. Benitez (ed.), *Fundamental solutions in boundary elements: Formulation and Integration* (SAND, Seville, 1997).
35. S.E. Kattis, D.L. Karabalis and D.E. Beskos, "Effect of poroelastic saturated soil on the seismic response of tunnels," 11th European Conference on Earthquake Engineering (Balkema, Rotterdam, 1998).
36. G. Hatzigeorgiou, I.D. Hondros, H. Karamaneas, D.L. Karabalis and D.E. Beskos, "Static, Dynamic and Stability Analysis of a 450kW wind turbine structure," (in Greek) pp. 221-228 in: K.T. Thomopoulos, C.C. Baniotopoulos and A.V. Avdelas 3rd National Conference on Steel Structures (Metal Structures Research Society, Thessaloniki, 1998).
37. S.E. Kattis, K. Karveli, D.L. Karabalis and D.E. Beskos, "Seismic response analysis of lined tunnels in poroelastic soil medium," pp. 615-624 in: G. Oliveto and C.A. Brebbia (eds) *Earthquake Resistant Engineering Structures II* (WIT PRESS, Southampton, 1999).
38. G. Hatzigeorgiou, I.D. Hondros, H. Karamaneas, N. Bazeos, D.L. Karabalis and D.E. Beskos, "Design and analysis of a prototype wind turbine steel tower" IASS-IACM 2000, June 4-7, 2000, Chania, Crete.
39. K. Alexandrou and D.L. Karabalis, "Seismic behavior and mild structural interventions on a 11th century Byzantine monument," pp.463-476, in: *Proceedings 1st National Congress on Mild Interventions and Protection of Historic Structures* (Thessaloniki, November 23-25, 2000), Ministry of Culture, Thessaloniki, 2000.
40. D.C. Rizos, J. Wang and D.L. Karabalis, (invited paper) "A direct time domain BEM-FEM scheme for soil-structure interaction problems" pp. 103-115, in: D.E. Beskos, C.A. Brebbia, J.T. Katsikadelis and G.D. Manolis (eds) *Boundary Elements XXIII* (WIT Press, Southampton 2001).
41. N. Stathopoulos and D.L. Karabalis, "Nonlinear analysis of elastic L-flange ring joints with prestressed bolts" pp. 73-81, in: D.E. Beskos, D.L. Karabalis and A.N. Kounadis (eds) *Proceedings 4th National Conference on Steel Structures* (TYPORAMA, Patras, 2002).
42. L.S. Papadimitriou, N. Bazeos and D.L. Karabalis, "Stability analysis and structural optimization of a prototype wind turbine steel tower" pp. 221-229, in: D.E. Beskos, D.L. Karabalis and A.N. Kounadis (eds) *Proceedings 4th National Conference on Steel Structures* (TYPORAMA, Patras, 2002).

43. A.V. Asimakopoulos, D.L. Karabalis and D.E. Beskos, "Yield displacement estimates for the displacement based design of plane steel frames", pp. 385-393, in: D.E. Beskos, D.L. Karabalis and A.N. Kounadis (eds) *Proceedings 4th National Conference on Steel Structures (TYPORAMA, Patras, 2002)*.
44. D.L. Karabalis, "A study on the coupled modes of vibration of a footing on half space", in: D.T. Tsahalis (ed.) *Proceedings 4th GRACM Congress on Computational Mechanics*, (Laboratory of Fluid Mechanics and Energy, University of Patras, Patras, 2002).
45. H.E. Karamaneas, D.C. Rizos and D.L. Karabalis, "Seismic analysis of multistory buildings including foundation-soil-foundation interaction", in: B.H.V. Topping and Z. Bittnar (eds) *Proceedings of The Sixth International Conference on Computational Structures Technology (CIVIL-COMP PRESS, 2002)*.
46. D.L. Karabalis and N.D. Stathopoulos, "3-D prestressed ring joints subjected to bending loads" Second M.I.T. Conference on Computational Fluid and Solid Mechanics, June 17 - 20, 2003.
47. A.V. Asimakopoulos, D.L. Karabalis and D.E. Beskos, "Treatment of P- Δ effect in a displacement-based design procedure of steel moment resisting frames" International Conference on Steel Structures in Seismic Areas – STESSA 2003, Naples, Italy, June 9-12, 2003.
48. A.A. Dimas, T.L. Karavasilis and D.L. Karabalis, "Large wave simulation of sloshing in seismically excited rectangular tanks" 7th National Congress on Mechanics (HSTAM), June 24-26, 2004, Chania, Crete.
49. T. L. Karavasilis, D.C Rizos and D.L. Karabalis, "Seismic analysis of spherical tanks including fluid-structure-soil interaction" 13th World Conference on Earthquake Engineering, Vancouver, B.C., Canada, August 1-6, 2004.
50. N. Bazeos and D.L. Karabalis, "On computing the critical load of tapered columns" 7th National Congress on Mechanics (HSTAM), June 24-26, 2004, Chania, Crete.
51. P. Summers, P. Jacob. J. Marti, G. Bergamo, L. Dorfmann, G. Castellano, A. Poggianti, D.L. Karabalis, H. Silbe, and S. Triantafillou, "Development of New Base Isolation Devices for Application at Refineries and Petrochemical Facilities", 13th World Conference on Earthquake Engineering, Vancouver, B.C., Canada, August 1-6, 2004.
52. V.P. Gregoriou, S.V. Tsinopoulos and D.L. Karabalis, "Seismic analysis of base isolated liquefied natural gas tanks," 5th GRACM International Congress on Computational Mechanics, Limassol, 29 June-1 July, 2005, pp.305-312.
53. J.C. Drosos, S.V. Tsinopoulos and D. L. Karabalis, "Seismic response of spherical liquid storage tanks with a dissipative bracing system," 5th GRACM International Congress on Computational Mechanics, Limassol, 29 June-1 July, 2005, 313-319.
54. V.P. Gregoriou, S.V. Tsinopoulos and D.L. Karabalis, "Base isolated LNG tanks: seismic analyses and comparison studies" First European Conference on Earthquake Engineering and Seismology, Geneva, Switzerland, 3-8 September 2006, Paper Number: 1128.
55. Giarlelis, C., Lekka, D., Mylonakis, G., Karabalis, D., Anagnostopoulos, S., Vgenopoulou, I. "Performance of a 3-Storey RC Structure on Soft Soil in the M6.4 Lefkada, 2003, Greece, Earthquake" 1st First European Conference on Earthquake Engineering and Seismology, Geneva, Switzerland, 3-8 September 2006, 10 pages on CD-ROM.
56. Maravas, A, Mylonakis, G., Karabalis, D. "Natural Period and Effective Damping on Footings and Piles", 2nd Greece-Japan Workshop on Seismic Analysis and Design of Foundations, 4-6 April 2007, Tokyo.
57. Maravas, A, Mylonakis, G., Karabalis, D. "Elastodynamic SSI for Bridge Piers on Piles and Footings", 1st International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, COMPDYN2007, Rethymno, Greece, 13-15 June 2007, 10 pages on CD-

ROM.

58. Karaliolios, N.G. and Karabalis, D.L. "A novel solution to Newton's equation", ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Rethymno, Greece, 13-16 June 2007.
59. Maravas, A., Mylonakis, G., Karabalis, D. "Dynamic Characteristics of Simple Structures on Piles and Footings", *4ICEGE*, Salonica, June 25-28, 2007, 12 pages on CD-ROM.
60. Maravas, A., Mylonakis, G., Karabalis, D. "Natural Period and Effective Damping on Footings and Piles", 3rd International Conference on Structural Engineering, Mechanics and Computation, Cape Town, South Africa, September 10-12, 2007.
61. Maravas, A., Mylonakis, G., Karabalis, D.L., "Analytical SSI Solutions for Structures on Footings and Piles", *GEESD - Geotechnical Earthquake Engineering and Soil Dynamics IV*, Sacramento, May 2008, 10 pages on CD-ROM.
62. Giarlelis, C.H., Lekka, D., Mylonakis, G., Anagnostopoulos, S., Karabalis, D. "Performance of a 3-storey Structure on Soft Soil in the Lefkada, 14/8/2003, Earthquake ", 3rd Greek Conference on Earthquake Engineering, November 5-7, Athens, 2008, paper 1906.
63. Maravas, A., Mylonakis, G., Karabalis, D. "Elastodynamic SSI Solutions for Bridge Piers founded on Footings and Piles", 3rd Greek Conference on Earthquake Engineering, November 5-7, Athens, 2008, paper 1903.

E. Refereed Journals

1. D.L. Karabalis and D.E. Beskos, "Static, Dynamic and Stability Analysis of Structures Composed of Tapered Beams," *Computers and Structures*, Vol. 16, No. 6, pp. 731-748, 1983.
2. D.L. Karabalis and D.E. Beskos, "Dynamic Response of Rigid Surface Foundations by Time Domain Boundary Element Method," *Earthquake Engineering and Structural Dynamics*, Vol. 12, pp. 73-93, 1984.
3. D.L. Karabalis and D.E. Beskos, "Dynamic Response of 3-D Flexible Surface Foundations by Time Domain Finite and Boundary Element Methods," *International Journal of Soil Dynamics and Earthquake Engineering*, Vol. 4, pp. 91-101, 1985.
4. D.L. Karabalis and D.E. Beskos, "Dynamic Analysis of 3-D Embedded Foundations by Time Domain Boundary Element Method," *Computer Methods in Applied Mechanics and Engineering*, Vol. 56, pp. 91-119, 1986.
5. D.L. Karabalis, Discussion on "Approximate Stiffness Matrix for Tapered Beams," *Journal of Structural Engineering*, ASCE, Vol. 113, pp. 425-427, 1987.
6. A.P. Gaitanaros and D.L. Karabalis, "Dynamic Analysis of 3-D Flexible Embedded Foundations by a Frequency Domain BEM-FEM," *Earthquake Engineering and Structural Dynamics*, Vol. 16, 653-674, 1988.
7. M. Mohammadi and D.L. Karabalis, "3-D Soil-Structure Interaction Analysis by BEM: Comparison Studies and Computational Aspects," *Soil Dynamics and Earthquake Engineering*, Vol. 9, 96-108, 1990.
8. D.L. Karabalis and D.E. Beskos, Discussion on "Time-Domain Transient Elastodynamic Analysis of 3-D Solids by BEM," *International Journal for Numerical Methods in Engineering*, Vol. 29, 211-215, 1990.
9. D.L. Karabalis and C.-F.D. Huang, "Inertial Soil-Foundation Interaction by a Direct Time Domain BEM," *Mathematical and Computer Modelling*, Vol. 15, No. 3-5, 215-228, 1991.

10. D.L. Karabalis, "A Simplified 3-D Time Domain BEM for Dynamic Soil-Structure Interaction Problems," *Engineering Analysis with Boundary Elements*, Vol. 8, No. 3, 139-145, 1991.
11. D.C. Rizos and D.L. Karabalis, "An Integrated BEM Algorithm for Transient 2-D Flow in Unconfined Aquifers," *Microcomputers in Civil Engineering*, Vol. 7, 333-340, 1992.
12. D.L. Karabalis, "Formulation of 3-D Dynamic SSI Analysis Involving Contact Nonlinearities by Time Domain BEM-FEM," *Engineering Analysis with Boundary Elements*, Vol. 11, 277-284, 1993.
13. D.C. Rizos and D.L. Karabalis, "Transient Solution of 2-D Flow in Unconfined Coastal Aquifers," *Engineering Analysis with Boundary Elements*, Vol. 11, 215-224, 1993.
14. D.L. Karabalis, "Simplified Analysis of General Instability of Stiffened Shells with Cutouts in Pure Bending," *Journal of the American Institute of Aeronautics and Astronautics (AIAA Journal)*, Vol. 32, No. 10, 2128-2131, 1994.
15. D.C. Rizos and D.L. Karabalis, "An Advanced Direct Time Domain BEM Formulation for General 3-D Elastodynamic Problems" *Computational Mechanics*, Vol. 15, 249-269, 1994.
16. G.J. Cokkinides and D.L. Karabalis, "3-D Time Domain BEM Analysis with Animated Graphics," *Advances in Engineering Software*, Vol. 21, 191-200, 1994.
17. M. Mohammadi and D.L. Karabalis, "Dynamic 3-D soil-railway track interaction by BEM-FEM," *Earthquake Engineering and Structural Dynamics*, Vol. 24, 1177-1193, 1995.
18. J.S. Mulliken and D.L. Karabalis, "Discrete models for through-soil coupling of foundations and structures," *Earthquake Engineering and Structural Dynamics*, Vol. 27, 687-710, 1998.
19. D.L. Karabalis and M. Mohammadi, "3-D dynamic foundation-soil foundation interaction on a layered soil medium," *Soil Dynamics and Earthquake Engineering*, Vol.17, 139-152, 1998.
20. D.C. Rizos and D.L. Karabalis, "A time domain BEM for 3-D elastodynamic analysis using the B-spline fundamental solutions" *Computational Mechanics*, Vol. 22, 108-115, 1998.
21. D.L. Karabalis, G.J. Cokkinides, D.C. Rizos, and J.S. Mulliken, "Simulation of earthquake ground motions by a deterministic approach," *Advances in Engineering Software*, Vol. 31, 329-338, 2000.
22. N. Bazeos, G.D. Hatzigeorgiou, I.D. Hondros, H. Karamaneas, D.L. Karabalis and D.E. Beskos "Static, seismic and stability analyses of a prototype wind turbine steel tower" *Engineering Structures*, Vol. 24, 1015-1025, 2002.
23. D.L. Karabalis, "Non-singular time domain BEM with applications to 3-D inertial soil-structure interaction", *Soil Dynamics and Earthquake Engineering*, Vol. 24, 281-293, 2004.
24. Karabalis, D.L. and Huang, C.-F. D. "Vibrations of square and circular foundations with concentric openings on elastic half space" *Soil Dynamics and Earthquake Engineering*, Vol. 25, pp. 951-965, 2005.
25. Bazeos N. and Karabalis D.L. "Efficient Computation of Buckling Loads for Plane Steel Frames with Tapered Members" *Engineering Structures*, Vol. 28, pp. 771-775, 2006.
26. Asimakopoulos, A.V., Karabalis, D.L. and Beskos, D.E. "Inclusion of $P-\Delta$ effect in displacement-based seismic design of steel moment resisting frames" *Earthquake Engineering and Structural Dynamics*, Vol. 36, pp. 2171-2188, 2007.
27. Drosos, G.C., Dimas, A.A. and Karabalis, D.L. "Discrete models for seismic analysis of liquid storage tanks of arbitrary shape and fill height" *Journal of Pressure Vessel Technology*, Vol. **130**, pp. 1-12, 2008.
28. Psimoulis, P., Pytharouli, S., Karabalis, D, and Stiros, S. "Potential of Global Positioning System (GPS) to measure frequencies of oscillations of engineering structures" *Journal of Sound and Vibration*, Vol. 318, pp. 606-623, 2008.

29. Giarlelis, C., Lekka, D., Mylonakis, G. and Karabalis, D.L. "The M6.4 Lefkada 2003, Greece, Earthquake: Dynamic response of a 3-storey R/C structure on soft soil" *Soil Dynamics and Earthquake Engineering* (submitted).
30. Stathopoulos, N.D., Bazeos N. and Karabalis D.L. "3-D Elastic Behaviour of L-Flange Connections including Contact Nonlinearities" *Computers and Structure* (in preparation).

F. Chapters in Books

1. D.L. Karabalis and D.E. Beskos, "Three-Dimensional Soil-Structure Interaction by Boundary Element Methods," Chapter 1, in C. A. Brebbia, Ed., *Topics in Boundary Element Research*, Vol. IV, Springer, Berlin, 1987.
2. D.L. Karabalis and D.E. Beskos, "Dynamic Soil-Structure Interaction," Chapter 11, in D. E. Beskos, Ed., *Boundary Element Methods in Mechanics*, North-Holland, Amsterdam, 1987.
3. D.L. Karabalis, "Elastic Torsion of Bars," Chapter 2, in D. E. Beskos, Ed., *Boundary Element Methods in Structural Analysis*, ASCE, New York, 1989.
4. D.L. Karabalis, "Soil-Foundation Interaction by Time Domain BEM," pp. 155-168, in: *Aktuelle Probleme der Bodendynamik*, Heft 120, Institut für Bodenmechanik und Felsmechanik, Universität Fridericiana Karlsruhe, Karlsruhe 1990.
5. D.L. Karabalis and D.C. Rizos, Dynamic Analysis of 3-D Foundations, Chapter 6, in: G. D. Manolis and T. G. Davis, Eds, *Boundary Element Techniques in Geomechanics*, Computational Mechanics Publications, Southampton, 1993.
6. D.L. Karabalis and D.E. Beskos, "Numerical Methods in Earthquake Engineering", Chapter 1, pp. 1-102, in: D.E. Beskos and S.A. Anagnostopoulos *Computer Analysis and Design of Earthquake Resistant Structures: A Handbook*, Computational Mechanics Publications, Southampton, 1997.
7. D.C Rizos and D.L. Karabalis, "Soil-Fluid-Structure Interaction", Chapter 9 in: E. Kausel and G.D. Manolis (eds) *Wave Motion in Earthquake Engineering*, WIT PRESS, Southampton, 2000.

G. Books

1. D.L. Karabalis, Editor, "Recent Applications in Computational Mechanics," American Society of Civil Engineers, New York, 1986.
2. D.E. Beskos, D.L. Karabalis and A.N. Kounadis, Editors, "4th National Conference on Steel Structures," TYPORAMA, Patras, 2002.
3. Bazeos, N., Karabalis, D.L., Polyzos, D., Beskos, D.E. and Katsikadelis, J.T. (Eds) "Proceedings of the 8th HSTAM, International Congress on Mechanics" University of Patras, Patras 2007.

GRADUATE STUDENTS SUPERVISED

A. M.S. Theses

1. Mohsen Mohammadi (May 1986).
2. Alexandros P. Gaitanaros (December 1986).
3. C.-F. David Huang (January 1988).
4. Dimitrios C. Rizos (May 1989).
5. Gautom Dey (May 1991).
6. Jeffrey Mulliken (December 1994)
7. Μανωλοπούλου Ασημούλα (2000)
8. Καραμπελιά Μαρία (2002)
9. Σταθόπουλος Νικόλαος (2002)

10. Καραβασίλης Θεόδωρος (2004)
11. Γρηγορίου Βασίλης (2005)
12. Δρόσος Γεώργιος (2005)
13. Δρόσος Ιωάννης (2005)
14. Μαραβιάς Ανδρέας (2006)
15. Λέκκα Δέσποινα (2007)
16. Σακελλαράκη Ελένη (2009)
17. Παναγιωτοπούλου Μαρία (2010)

B. Ph.D. Dissertations

1. Alexandros P. Gaitanaros, "Nonlinear Dynamic Analysis of 3-D Structures Using A Direct Time Domain BEM-FEM," (December 1988).
2. Mohsen Mohammadi, "3-D Dynamic Foundation-Soil-Foundation Interaction by BEM," (May 1992).
3. C.-F. David Huang, "Dynamic Soil-Foundation and Foundation-Soil-Foundation Interaction in 3-D," (May 1993).
4. Dimitrios C. Rizos, "Advanced Time Domain Boundary Element Method for General 3-D Elastodynamic Problems," (December 1993).
5. Dan D. Nale, "Prediction and Minimization of Computed Error in Elastic Stress Analysis due to Random Measurement Errors on the Boundary," (May 1997).

FUNDED RESEARCH PROPOSALS

1. "Non-Linear Soil-Structure Interaction," Research and Productive Scholarship - U.S.C., September 1986 - August 1987 (\$2,000).
2. "Soil-Structure Interaction Analysis of SRS High Level Radioactive Waste Storage Tanks," Westinghouse Savannah River Company, September 1991 - August 1992 (\$116,479).
3. "Nonlinear Dynamic Soil-Structure Interaction by Time Domain BEM-FEM," NATO Scientific Affairs Division, September 1991 - August 1993 (\$6,200).
4. "Soil-Structure Interaction Analysis of SRS High Level Radioactive Waste Storage Tanks: Project Extension" Westinghouse Savannah River Company, September 1992 - April 1993 (\$83,454).
5. "Soil-Structure Interaction Analysis of SRS Waste Management Facilities," Westinghouse Savannah River Company, June 1993 - December 1995 (\$507,000).
6. "FEM Modeling and Strength Analysis of the Hub, the Shaft, and the Housing Unit of a Wind Turbine", Centre for Renewable Energy Sources, July 1996 - November 1996 (3,300,000 Drachmas).
7. "Development of Certification System for Wind Turbines" Centre for Renewable Energy Sources, October 1996 - January 1997 (2,400,000 Drachmas).
8. "Seismic Analysis of 3-D Tunnels in A Poroelastic Soil Medium", General Secretariat for Research and Technology (PENED), January 1997 - December 1999 (8,000,000 Drachmas)
9. "FEM Modeling and Analysis of the Structural Parts of Wind Turbine Towers" Centre for Renewable Energy Sources, February 1997 - June 1997 (4,000,000 Drachmas).
10. "Seismic Analysis of Wind Turbine Towers and Design of Their Foundations" Greek Power Company (Research Program EPET II #573), November 1997 - February 1998 (2,000,000 Drachmas).
11. "3-D analysis and shape optimization of sample for shear testing", Institute of Mechanics of Materials and Geotechnics S.A., December 1997 - February 1998 (500,000 Drachmas).

12. “Development of a new methodology for the design of steel structures based on deformations”, University of Patras – Program K. Karatheodori, October 1998 – September 2000 (4,000,000 Drachmas).
13. ‘Μελέτη σεισμικότητας και καθορισμός σεισμικής επικινδυνότητας της Ρόδου’ Οργανισμός Αντισεισμικού Σχεδιασμού και Προστασίας (ΟΑΣΠ), Προϋπολογισμός 30,000,000 δρχ., Φεβρουάριος 2000 (Πανεπιστήμιο Πατρών και άλλοι δύο φορείς από την Ελλάδα και τη Γαλλία).
14. “Static and seismic analysis of a prototype steel tank for water storage”, Geoviologiki S.A., June – December 2000 (1,000,000 Drachmas).
15. “Development of a MW scale wind turbine for high wind complex terrain sites (MEGAWIND)” European Commission Research Directorates Project No NNE5-2000-00327, 12/2000-12/2003 (UoP, Civil Engineering, budget € 40,000).
16. “Development of innovative devices for seismic protection of petrochemical facilities (INDEPTH)” European Commission Research Directorates Project No EVG1-CT-2002-00065, 9/2002-8/2005 (UoP budget € 216,886).
16. «ΑΜΦΙΤΡΙΤΗ: Συνδυασμός Χερσαίων/Θαλάσσιων τεχνικών για την Ανάπτυξη Πρωτοποριακής – Ολοκληρωμένης Μεθοδολογίας Εκτίμησης του Σεισμικού Κινδύνου για την Ασφάλεια Υποδομών σε παράκτιες Ζώνες» Γενική Γραμματεία Έρευνας και Τεχνολογίας (Κωδικός ΔΠ24), 1/6/2003-31/5/2006 (Χρηματοδότηση Πανεπιστημίου Πατρών € 99,465).
17. «Αποτίμηση-ιεράρχηση και μείωση του σεισμικού κινδύνου του εθνικού τηλεπικοινωνιακού δικτύου», Φορείς: ΟΤΕ, ΕΜΠ, ΑΠΘ, Παν. Πατρών (Γενική Γραμματεία Έρευνας και Τεχνολογίας, Πρόγραμμα ΕΠΑΝ, συνολική χρηματοδότηση € 1,400,000).