Dr. Reinhard Piltner

CONTACT
INFORMATION

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PROFESSIONAL
POSITIONS

Regular, Limited Term Assistant Professor　　　　　　　　August 2013 to present
Department of Mathematical Sciences, Georgia Southern University

SAOT[1] Visiting Professor　　　　　　　　August 2012 to August 2013
Pattern Recognition Lab, Department of Computer Science, Friedrich-Alexander University of Erlangen-Nuremberg, Germany
Research: 3D finite element modeling in medical imaging; surface modeling.

Temporary Assistant Professor　　　　　　　　August 2004 to August 2012
Department of Mathematical Sciences, Georgia Southern University

Assistant Professor　　　　　　　　January 1996 to August 2004
Department of Engineering Mechanics, University of Nebraska-Lincoln
Research: Biomedical Engineering; mixed finite elements; enhanced strain methods; large deformations; nonlinear material models; composites.

Associate Research Engineer　　　　　　　　November 1991 to December 1995
Structural Engineering, Mechanics and Material Division, Department of Civil and Environmental Engineering, University of California at Berkeley
Research: finite elements; boundary integral methods; new plate and shell formulations; fracture mechanics; plasticity. Sponsored by Prof. R.L. Taylor and Prof. P.J. Monteiro.

Research Engineer　　　　　　　　May 1990 to October 1991
Department of Civil and Environmental Engineering, University of California at Berkeley
Research: second thesis (Habilitation) for Ruhr-Universität, Bochum, Germany. The use of complex valued functions for two and three dimensional elasticity problems with applications in finite element and boundary element methods.

Research Associate　　　　　　　　April 1987 to April 1990
Structural Engineering, Mechanics and Material Division, Department of Civil and Environmental Engineering, University of California at Berkeley
Research: boundary integral methods.
Audited classes related to mechanics in the Departments of Civil Engineering, Mechanical Engineering and Mathematics at University of California at Berkeley.

Assistant Professor　　　　　　　　July 1982 to December 1986
Institute for Mechanics, Department of Civil Engineering, Ruhr-Universität, Bochum, Germany
Research: boundary element methods; complex functions in 3-dimensional elasticity; dynamical behavior of steel structures in electrical fields during high voltage short circuits.
Teaching: graduate courses in computational mechanics.

Research Engineer　　　　　　　　October 1976 to June 1982
Institute for Mechanics, Department of Civil Engineering, Ruhr-Universität, Bochum, Germany
Research: hybrid finite elements for stress concentration problems, using complex functions; acoustic emission from plates; fracture mechanics.

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[1]SAOT is a graduate school of the German excellence initiative, founded by the German Research Foundation (DFG). SAOT provides an interdisciplinary research and education program of excellence within a broad international network of distinguished experts to promote innovation and leadership in the areas.

Teaching: graduate and undergraduate courses in mechanics.

EDUCATION   **Ruhr-Universität, Bochum, Germany**

Dr.-Ing. (equivalent to Ph.D.), Civil Engineering, June 1982

Thesis Topic: *Special finite elements with holes, notches and cracks using analytical solution series*

Ruhr-Universität, Bochum, Germany

Dipl.-Ing. (equivalent to Master), Civil Engineering, March 1976

Thesis Topic: *Wave propagation in rods*

REFEREED
JOURNALS

[1] Xiaolu Zhou, Lixin Li[2], Marc Kalo, Weitian Tong, Reinhard Piltner, Sensing air quality: spatiotemporal interpolation and visualization of real-time air pollution data for the contiguous U.S., *Transactions in GIS*, John Wiley & Sons, 38 pages, under review.

[2] Lixin Li, Xiaolu Zhou, Marc Kalo, Reinhard Piltner, Spatiotemporal Interpolation Methods for the Application of Estimating Population Exposure to Fine Particulate Matter $PM_{2.5}$ in the Contiguous U.S. and a Real-Time Web Application, *International Journal of Environmental Research and Public Health*, Vol. 13, No. 8, 749 (1-20), 2016.

[3] Lixin Li, Travis Losser, Charles Yorke, Reinhard Piltner, Fast Inverse Distance Weighting-based Spatiotemporal Interpolation: A Web-based Application of Interpolating Daily Fine Particulate Matter $PM_{2.5}$ in the Contiguous U.S. using Parallel Programming and k-d Tree, *International Journal of Environmental Research and Public Health*, Vol. 11, No. 9, 9101-9141, 2014.

[4] Lixin Li, Xingyou Zhang, James Holt, Jie Tian, Reinhard Piltner, Estimating Population Exposure to Fine Particulate Matter in the Conterminous U.S. using Shape Function-based Spatiotemporal Interpolation Method: A County Level Analysis, *International Journal on Computing*, Vol. 1, No. 4, 24-30, 2012.

[5] Reinhard Piltner, Some Remarks on Finite Elements with an Elliptic Hole, *Finite Elements in Analysis and Design*, Vol. 44, Issues 12-13, 767-772, 2008.

[6] Lixin Li, Xingyou Zhang, Reinhard Piltner, An Application of the Shape Function Based Spatiotemporal Interpolation Method on Ozone and Population Exposure in the Contiguous U.S., *Journal of Environmental Informatics*, Vol. 12, No. 2, 120-128, December 2008.

[7] Lixin Li, Youming Li, Reinhard Piltner, A New Shape Function Based Spatiotemporal Interpolation Method, *Lecture Notes in Computer Science*, Vol. 3074, 25-39, Springer, 2004.

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[9] Reinhard Piltner, Solution Representations for Trefftz-type Finite Elements, *Computer Assisted Mechanics and Engineering Sciences (CAMES)*, Vol. 10, 587-596, 2003.

[10] Reinhard Piltner, Low Order Plate Bending Elements with Enhanced Strains, *Computers & Structures*, Vol. 80, 849-856, 2002.

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[2]Correspondence author.

[11] Reinhard Piltner, Overview about Solution Representations for Elasticity Problems and Some Selected Particular Solutions, *Mathematics and Mechanics of Solids*, Vol. 6, 193-220, 2001.

[12] Reinhard Piltner, Deepu S. Joseph, An Accurate Low Order Plate Bending Element with Thickness Change and Enhanced Strains, *Computational Mechanics*, Vol. 27, 353-359, 2001.

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[14] T. Celestino, Reinhard Piltner, Paulo J.M. Monteiro, Claudia Ostertag, Fracture Mechanics of Marble using a Splitting Tension Test, *Journal of Materials in Civil Engineering*, Vol. 13, No. 6, 407-411, 2001.

[15] Reinhard Piltner, Robert L. Taylor, Triangular Finite Elements with Rotational Degrees of Freedom and Enhanced Strain Modes, *Computers & Structures*, Vol. 75, 361-368, 2000.

[16] Reinhard Piltner, An Alternative Version of the Pian-Sumihara Element with a Simple Extension to Non-linear Problems, *Computational Mechanics*, Vol. 26, 483-489, 2000.

[17] Reinhard Piltner, An Implementation of Mixed Enhanced Finite Elements with Strains Assumed in Cartesian and Natural Element Coordinates using Sparse $\bar{\text{B}}$-matrices, *Engineering Computations*, Vol. 17, 933-949, 2000.

[18] Reinhard Piltner, Paulo J.M. Monteiro, Stress Analysis of Expansive Reactions in Concrete, *Cement and Concrete Research Journal*, Vol. 30, 843-848, 2000.

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[20] Reinhard Piltner, On the Systematic Construction of Trial Functions for Hybrid Trefftz Shell Elements, *Computer Assisted Mechanics and Engineering Sciences (CAMES)*, Vol. 4, 633-644, 1997.

[21] Reinhard Piltner, Robert L. Taylor, A Quadrilateral Mixed Finite Element with Two Enhanced Strain Modes, *International Journal for Numerical Methods in Engineering*, Vol. 38, 1783-1808, 1995.

[22] Reinhard Piltner, Recent Developments in the Trefftz-method for Finite Element and Boundary Element Applications, *Advances in Engineering Software*, Vol. 24, 107-115, 1995.

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[32] Reinhard Piltner, Special Finite Elements with Holes and Internal Cracks, *International Journal for Numerical Methods in Engineering*, Vol. 21, 1471-1485, 1985.

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[35] Lixin Li, Xingyou Zhang, James Holt, Jie Tian, Reinhard Piltner, Spatiotemporal Interpolation Methods for Air Pollution Exposure, *Proceedings of the Ninth Symposium on Abstraction, Reformulation, and Approximation* , 75-81, Parador de Cardona, Spain, AAAI (Association for the Advancement of Artificial Intelligence), July 2011.

[36] Lixin Li, Xingyou Zhang, Reinhard Piltner, Comparison of Deterministic and Stochastic Spatiotemporal Interpolation Methods for Ozone in the Conterminous U.S., *Proceedings of the 2009 Joint Statistical Meetings*, 377, Washington, DC, August 2009.

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[41] Reinhard Piltner, Lixin Li, Image based Modeling of Abdominal Aortic Aneurysms, *Proceedings of the Second SECABC Fall Workshop on Biocomputing*, 14-15, Atlanta, GA, Georgia State University, October 2005.

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[45] Reinhard Piltner, Solution Representations for Trefftz-type Plate Bending Elements, *Proceedings of the Second MIT Conference on Computational Fluid and Solid Mechanics*, Editor: K.J. Bathe, 582-585, Elsevier, Amsterdam, Boston, 2003.

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[47] Reinhard Piltner, Mixed Finite Elements with Voids and Inclusions, *Proceedings of the 15th ASCE Engineering Mechanics Division Conference*, 1-5, Columbia University, New York, USA, Editor: A.W. Smyth, June 2002.

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[58] Reinhard Piltner, Special Finite Elements for an Appropriate Treatment of Local Effects, *Local Effects in the Analysis of Structures*, 299-314, Editor: P. Ladeveze, Elsevier Science Publishers, 1985.

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OTHER
PUBLICATIONS

[61] Reinhard Piltner, Lixin Li, Mixed-enhanced quadrilateral finite elements with Wachspress-type functions, *Proceedings of the American Mathematics Society (AMS) 2011 Fall Central Section Meeting*, 99, Lincoln, NE, October 2011.

[62] Reinhard Piltner, Comment on "A Hybrid-Trefftz Element Containing an Elliptic Hole", by Manicka Dhanasekar, Jianjun Han, Qinghua Qin, *Finite Elements in Analysis and Design*, Vol. 42, 2006, 1314-1323, published in *Finite Elements in Analysis and Design*, Vol. 43 (11-12): 975-975, August 2007.

[63] Lixin Li, Xingyou Zhang, Reinhard Piltner, Spatiotemporal Interpolation and Constraint Databases for a GIS Application: Ozone in the Contiguous U.S., *Proceedings of the Dagstuhl-Seminar on Constraint Databases, Geometric Elimination and GIS*, 5, Dagstuhl, Germany, May 2007.

[64] Reinhard Piltner, Discussion of "Development of Four-Node Membrane Element Containing Central Circular Hole", by A.K. Soh, Z.F. Long, *Journal of Engineering Mechanics*, 1349-1349, 2002.

[65] Reinhard Piltner, Comments on "A high Precision Element with a Central Circular Hole" by A.K. Soh, Z.F. Long, *International Journal of Solids and Structures*, Vol. 38, 6265-6266, 2001.

[66] Reinhard Piltner, Comments on "Development of Two-Dimensional Elements with a Central Circular Hole" by A.K. Soh, Z.F. Long, *Computer Methods in Applied Mechanics and Engineering*, Vol. 191, 503-504, 2001.

[67] Reinhard Piltner, Comments on "Series Solutions for a Transversely Loaded and Completely Clamped Thick Rectangular Plate Based on the Three-Dimensional Theory of

Elasticity" by I.A. Okumura, Y. Oguma, *Archive of Applied Mechanics*, Vol. 70, (8-9), 670-670, October 2000.

[68] Reinhard Piltner, New Developments in Enhanced Strain Finite Elements for Linear and Non-linear Applications, *Festschrift zum 60, Geburtstag von Heinz Waller (Special Publication in honor of Professor Heinz Waller on the occasion of his 60th birthday), Mitteilungen aus dem Institut für Mechanik*, No. 97, 115-125, Ruhr-Universität Bochum, February 1995.

[69] Reinhard Piltner, Spezielle Finite Elemente mit Löchern, Ecken und Rissen unter Verwendung von Analytischen Teillösungen (Special Finite Elements with Holes, Notches and Cracks Using Analytic Solution Series), Fortschr.-Ber. VDI-Z, Reihe 1, Nr. 96, VDI-Verlag, Düsseldorf, 1982, 290 pages, ISBN: 3-18-149601-4.

RESEARCH
REPORTS

[70] Reinhard Piltner, Robert L. Taylor, A Boundary Element Algorithm Using Compatible Boundary Displacements and Tractions, Report of the Division of Structural Engineering, Mechanics and Materials, Dept. of Civil Engineering, University of California at Berkeley, Report: SEMM-88-19, 1988.

[71] Reinhard Piltner, The Derivation of a Thick and Thin Plate Formulation without Ad Hoc Assumptions, Report of the Division of Structural Engineering, Mechanics and Materials, Dept. of Civil Engineering, University of California at Berkeley, Report: SEMM-89-08, 1989.

[72] Reinhard Piltner, A Quadrilateral Hybrid Plate Bending Element for the Inclusion of Warping Based on a Three-Dimensional Plate Formulation, Report of the Division of Structural Engineering, Mechanics and Materials, Dept. of Civil Engineering, University of California at Berkeley, Report: SEMM-90-16, 1990.

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CONFERENCE
PRESENTATIONS

[1] Travis Losser, <u>Lixin Li</u>[3], Reinhard Piltner, A Spatiotemporal Interpolation Method Using Radial Basis Functions for Geospatiotemporal Big Data, *Fifth International Conference on Computing for Geospatial Research and Application*, Washington DC, IEEE, August 2014.

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[3]Presenting author is underlined.

[2] <u>Reinhard Piltner</u>, Lixin Li, Constructing Harmonic and Biharmonic Functions for Plane Deformations in a Snake Segmentation Tool, *MAG 2013*, Pattern Recognition Lab, Friedrich-Alexander University of Erlangen-Nuremberg, Erlangen, Germany, April 2013.

[3] <u>Reinhard Piltner</u>, Lixin Li, Mixed-enhanced Quadrilateral Finite Elements with Wachspress-type Functions, *The American Mathematics Society (AMS) 2011 Fall Central Section Meeting*, Lincoln, Nebraska, October 2011.

[4] <u>Reinhard Piltner</u>, Plane Strain Finite Elements with Wachspress-type Functions, *Southeastern Atlantic Regional Conference on Differential Equations (SEARCDE)*, Statesboro, Georgia, October 2011.

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[6] <u>Lixin Li</u>, Xingyou Zhang, Reinhard Piltner, Comparison of Deterministic and Stochastic Spatiotemporal Interpolation Methods for Ozone in the Conterminous U.S., *2009 Joint Statistical Meetings*, Washington, DC, August 2009.

[7] <u>Reinhard Piltner</u>, Lixin Li, Solving plate bending problems with discretized Cauchy integrals, *10th US National Congress on Computational Mechanics*, Ohio State University, Columbus, Ohio, July 2009.

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[9] <u>Reinhard Piltner</u>, Lixin Li, Utilizing discretized Cauchy integrals for the Trefftz method, *5th Workshop on Trefftz Methods*, Katholieke Universiteit Leuven, Leuven, Belgium, April 2008.

[10] <u>Reinhard Piltner</u>, Lixin Li, The Use of Discretized Cauchy Integrals for Finite Elements, *Ninth US National Congress on Computational Mechanics*, San Francisco, CA, July 2007.

[11] <u>Lixin Li</u>, Xingyou Zhang, Reinhard Piltner, Spatiotemporal Interpolation and Constraint Databases for a GIS Application: Ozone in the Contiguous U.S., *Dagstuhl-Seminar on Constraint Databases, Geometric Elimination and GIS*, Dagstuhl, Germany, May 2007.

[12] Lixin Li, Xingyou Zhang and Reinhard Piltner, A Spatiotemporal Database for Ozone in the Conterminous U.S., *13th International Symposium on Temporal Representation and Reasoning*, Budapest, Hungary, IEEE, June 2006, presented by <u>Peter Revesz</u>.

[13] <u>Reinhard Piltner</u> and Lixin Li, Image based Modeling of Abdominal Aortic Aneurysms, *Second SECABC Fall Workshop on Biocomputing*, Atlanta, GA, October 2005.

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[15] Wei Tu, <u>Lixin Li</u> and Reinhard Piltner, A Study of Smart Growth Initiatives using GIS: The case of Austin, Texas, *Sixth Annual National Conference on Digital Government Research*, Atlanta, GA, May 2005.

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[17] <u>Lixin Li</u> and Reinhard Piltner, Voronoi Region-Based Spatiotemporal GIS Databases, *Fifth Annual National Conference on Digital Government Research*, Seattle, WA, May 2004.

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[19] <u>Reinhard Piltner</u>, Hexahedral Solid Elements with Enhanced Strains, *7th US National Congress on Computational Mechanics*, Albuquerque, NM, August 2003.

[20] <u>Reinhard Piltner</u>, Solution Representations for Trefftz-type Plate Bending Elements, *Second MIT Conference on Computational Fluid and Solid Mechanics*, MIT, Cambridge, June 2003.

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[22] <u>Reinhard Piltner</u>, Solution Representations for Trefftz-type Finite Elements, *Third International Conference on Trefftz Methods*, University of Exeter, Exeter, United Kingdom, (invited lecture) , September 2002.

[23] <u>Reinhard Piltner</u>, Low Order Mixed Enhanced Finite Elements for Two- and Three-Dimensional Problems, *WCCM V - Fifth World Congress on Computational Mechanics*, Vienna University of Technology, Vienna, Austria, July 2002.

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[28] <u>Reinhard Piltner</u>, Two- and Three-dimensional Mixed Enhanced Finite Elements with Orthogonal Stress and Strain Functions, *Fifth US National Congress on Computational Mechanics (USNCCM '99)*, Boulder, CO, August 1999.

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[31] <u>Reinhard Piltner</u>, A Quadrilateral Mixed Enhanced Finite Element with Strains Assumed in Cartesian Coordinates, *Fourth U.S. National Congress on Computational Mechanics*, San Francisco, California, August 1997.

[32] <u>Reinhard Piltner</u>, The Systematic Construction of Trial Functions for Hybrid Trefftz Shell Elements, *First International Workshop on Trefftz Methods*, Cracow, Poland, May 1996.

[33] <u>Reinhard Piltner</u>, A Quadrilateral Mixed Finite Element with Two Enhanced Strain Modes, *Third World Congress on Computational Mechanics*, Japan, August 1994.

[34] <u>Reinhard Piltner</u>, On the Systematic Construction of Stress, Strain and Displacement Functions in Trefftz-type Finite and Boundary Element Methods", *ICES-92*, Hong Kong, December 1992.

[35] <u>Reinhard Piltner</u>, The Use of Trefftz-Type Boundary Elements for the Evaluation of Symmetric Coefficient Matrices, *Symposium of the International Association for Boundary Element Methods*, University of Colorado, Boulder, Colorado, August 1992.

[36] <u>Reinhard Piltner</u>, Trefftz-Type Boundary Elements for Plate Problems, *Symposium of the International Association for Boundary Element Methods*, Kyoto University, Kyoto, Japan, October 1991.

[37] <u>Reinhard Piltner</u>, The Use of a Three-Dimensional Plate Formulation for the Inclusion of Warping and Transverse Shear Deformations in Hybrid Plate Bending Elements, *First U.S. National Congress on Computational Mechanics*, Chicago, Illinois, July 1991.

[38] <u>Reinhard Piltner</u>, The Inclusion of Shear Deformations in a Plate Bending Boundary Element Algorithm, *Symposium of the International Association for Boundary Element Methods*, Universita di Roma "La Sapienza", Roma, Italy, October 1990.

[39] <u>Reinhard Piltner</u>, The Solution of Plate Bending Problems with the Aid of a Boundary Element Algorithm Based on Singular Complex Functions, *12th International Conference on Boundary Element Methods in Engineering*, Hokkaido University, Sapporo, Japan, September 1990.

[40] <u>Reinhard Piltner</u>, The Use of the Cauchy Integral Formula to Construct Boundary Element Procedures in Elasticity, (Poster presentation), *Second World Congress on Computational Mechanics*, Universität Stuttgart, FRG, August 1990.

[41] <u>Reinhard Piltner</u>, The Evaluation of Stiffness Matrices for Elasticity Problems with the Aid of Boundary Integrals, *NUMETA 90 Conference*, Swansea, U.K., January 1990.

[42] <u>Reinhard Piltner</u>, A Boundary Element Algorithm for Plate Bending Problems Based on Cauchy's Integral Formula, *International Symposium on Boundary Element Methods*, United Technologies Research Center, East Hartford, Connecticut, October 1989.

[43] <u>Reinhard Piltner</u>, A Boundary Element Procedure for Plane Elasticity Based on Cauchy's Integral Formula, *Eleventh International Conference on Boundary Element Methods in Engineering*, Cambridge, Massachusetts, August 1989.

[44] <u>Reinhard Piltner</u>, Finite Elements with Internal and External Cracks, *GAMM-Seminar on "Fracture mechanics"*, Universität Kaiserslautern, FRG, 1985.

[45] <u>Reinhard Piltner</u>, The Consideration of Singular Points in Finite Element Computations, *GAMM-Seminar on "Singularities"*, Universität Saarbrücken, FRG, 1985.

[46] <u>Reinhard Piltner</u>, Special Finite Elements for an Appropriate Treatment of Local Effects, *EUROMECH COLLOQUIUM on "Local effects in the analysis of structures"*, University Paris VI, France, 1984.

[47] <u>Reinhard Piltner</u>, Finite Elements with Trial Functions in the Sense of Trefftz, *Conference on "Finite Elements"*, Technische Universität München, FRG, 1984.

[48] <u>Reinhard Piltner</u>, Special Problem Adapted Finite Elements, *GAMM-Conference (Society for Applied Mathematics and Mechanics)*, Universität Hamburg, FRG, 1983.

RECENT INVITED TALKS	[49] <u>Reinhard Piltner</u>, Complex Solution Representations in Elasticity and Their Use for Numerical Methods, Department of Applied Mathematics, Bauhaus University Weimar, Germany, December 16, 2015.
	[50] <u>Reinhard Piltner</u>, Implicit Functions for Image Based Modeling and Meshing, Pattern Recognition Lab, Department of Computer Science, Friedrich-Alexander University of Erlangen-Nuremberg, Erlangen, Germany, December 19, 2014.
SCIENTIFIC PROPOSALS	Submitted proposals to DFG (German Science Foundation), NSF, ONR, EPSCoR, DEPSCoR, NRI, University of Nebraska-Lincoln & Georgia Southern University internal proposal competitions.
	[1] Reinhard Piltner (PI) and Lixin Li (Co-PI), **Faculty Research Grant at Georgia Southern University**, *Computational Modeling for Biomedical Applications Using Methods from Biomathematics/Bioengineering/Bioinformatics*, $6,590, 2004-2005, funded.
STUDENTS SUPERVISED	**C. Petrat**, Ruhr-Universität Bochum, Germany
	H. Frania, Ruhr-Universität Bochum, Germany
	Deepu S. Joseph, University of Nebraska-Lincoln
	Shashank Mupparapu, University of Nebraska-Lincoln
CITATIONS BY OTHER RESEARCHERS	**ISI Web of Knowledge** Citations: 500, h-index: 11 (http://www.researcherid.com/rid/C-4547-2008)
	Harzing's Publish or Perish Citation Analysis Citations: 945, h-index: 15
	Researchgate.net Citations: 768, RG Score: 26.49
	Google Scholar Citations: 946, h-index: 15
CURRENT RESEARCH	Development of 3D models from sequences of medical images (CT/MRI). Surface and volume modeling with NURBS. Computational models for the simulation of the behavior of bones and implants and of abdominal aortic aneurysms.
RESEARCH AREAS	Finite element methods Computational methods for the simulation of biomedical problems (e.g. bones, implants, aneurysms) Image based 3D simulations of blood vessels Boundary element methods Combining boundary integral methods with finite elements Analytical and numerical solution methods in mechanics Computational Methods in Science and Engineering
TEACHING EXPERIENCE	**Georgia Southern University**, Statesboro, GA **August 2004-present** • Math 1111 College Algebra • Math 1112 Trigonometry • Math 1113 Pre-Calculus • Math 1232 Survey of Calculus

University of Nebraska-Lincoln, Lincoln, NE   **January 1996-August 2004**
- EM 220 Statics
- EM 223 Engineering Statics
- EM 250 Mechanics I: Statics
- EM 325 Mechanics of Elastic Bodies
- EM 350 Mechanics II: Dynamics
- EM 373 Dynamics
- EM 451/851 Introduction to Finite Element Analysis
- EM 918 Fundamentals of Finite Elements
- EM 951 Advanced Topics in Finite Element Methods
- EM 961B Advanced Investigations in Finite Elements

Ruhr-Universität, Bochum, Germany   **1977-1986**
Undergraduate course:
- Mechanics for Electrical Engineers (Mechanics of Materials)

Graduate courses:
- Numerical Methods in Engineering, Part I: Statics
- Numerical Methods in Engineering, Part II: Dynamics
- Numerical Methods in Engineering, Part III: Partial Differential Equations

PROFESSIONAL SERVICE

Journal Reviewer Service
- International Journal for Numerical Methods in Engineering
- Numerical Methods for Partial Differential Equations
- Computers & Structures
- Engineering Analysis with Boundary Elements
- Finite Elements in Analysis and Design
- Journal of Engineering Mechanics
- International Journal of Solids and Structures
- Structural Engineering and Mechanics
- European Journal of Mechanics
- Computational Mechanics
- Computer Modeling in Engineering and Science
- Communications in Numerical Methods in Engineering
- Computer Methods in Applied Mechanics and Engineering
- Journal of Applied Mechanics
- International Journal of Applied Electromagnetics and Mechanics

Proposal Reviewer Service
- Lawrence Livermore National Lab

Conference Service
- Acted as session chairman at national and international conferences

PROFESSIONAL AFFLIATIONS

AMS: American Mathematical Society (Member)
ASME: American Society of Mechanical Engineers (Member)

COMPUTING EXPERIENCES

- Worked on several computers with different operating systems (e.g. UNIX, LINUX, Windows). Wrote FORTRAN, C/C++ and MATLAB programs.
- Developed own finite element and boundary element programs.
- Implemented numerous numerical algorithms into finite element programs.
- Worked with the finite element programs FEAP (written by Prof. R.L. Taylor) and MESY (written by Prof. K. Schrader).

- Used the finite element program *ABAQUS* and the Computer-aided Design (CAD) software *Solidworks*.

INDUSTRY CONSULTATION

Developed a structural dynamics computer program for the power-plant RWE in Germany (with Prof. H. Waller).

AWARDS

- Teaching award for the Department of Engineering Mechanics, University of Nebraska-Lincoln, 2003.
- Certificate of Recognition for Contributions to Students, Teaching Council of the University of Nebraska-Lincoln, signed by the Chancellor, January 2004.