Anh-Vũ Phan, Ph.D.

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William B. Burnsed Jr. Dept. of Mechanical, Aerospace, and Biomedical Engineering
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EDUCATION

Postdoctoral Research Associate, Oak Ridge National Laboratory, Tennessee, 1999-2002

Affiliation: Computer Science & Mathematics Division

Mentor: Dr. Len J. Gray

Postdoctoral Researcher, Ecole Polytechnique, University of Montreal, Canada, 1998-1999

Affiliation: Department of Mechanical Engineering

Mentors: Prof. René Mayer, Prof. Guy Cloutier and Prof. Luc Baron

Ph.D. in Mechanical Eng., Ecole Polytechnique, University of Montreal, Canada, 1997

Concentrations: Computational Mechanics, Theoretical and Applied Mechanics

Dissertation: *The boundary contour method for two-dimensional linear elasticity – Applications in stress analysis and shape optimization*

Advisors: Prof. René Mayer and Prof. Subrata Mukherjee (Cornell University)

M.S. in Solid Mechanics, Grenoble Institute of Technology (INPG), France, 1993

Concentrations: Computational Mechanics, Structural Dynamics

Thesis: *Bruits mécaniques dans la ligne d'arbre de la turbo-pompe du moteur VULCAIN d'ARIANE V*

Advisor: Prof. Georges Reynaud

B.S. in Mechanical Eng., Ho Chi Minh City University of Technology, Vietnam, 1982

Concentration: Design and Manufacturing

PROFESSIONAL EXPERIENCES

University of South Alabama, Alabama

Professor and Interim Chair, William B. Burnsed Jr. Dept. of Mechanical, Aerospace, and Biomedical Engineering, Dec. 23 – present

Professor, William B. Burnsed Jr. Dept. of Mechanical, Aerospace, and Biomedical Engineering, Jan. 23 – Dec. 23

Professor and Interim Chair, William B. Burnsed Jr. Dept. of Mechanical, Aerospace, and Biomedical Engineering, Aug. 22 – Jan. 23

Professor, William B. Burnsed Jr. Dept. of Mechanical, Aerospace, and Biomedical Engineering, Aug. 09 – Aug. 22

Associate Professor with tenure, Dept. of Mechanical Engineering, Aug. 06 – Aug. 09

Assistant Professor, Dept. of Mechanical Engineering, Aug. 02 – Aug. 06

Graduate Coordinator, Dept. of Mechanical Engineering, Aug. 03 – Aug. 19

Adjunct Assistant Professor, Dept. of Orthopaedic Surgery, Nov. 04 – Oct. 05

- Teaching Dynamics (EG 284), Mechanics of Materials (EG 315), Aerospace Fundamentals (AE 260), Fundamentals of Aerodynamics (AE 361), Aircraft Structural Analysis (AE 470), Engineering Graphics and Communication (ME 135), Mechanical Engineering Thermodynamics (ME 312), Mechanical Engineering Analysis/Numerical Methods (ME 328), Mechanical Systems Design (ME 421), Dynamic Systems and Control (ME 426), Finite Element Analysis (ME 438/538), Mechanism Synthesis (ME 430/530), Vibration Analysis and Synthesis (ME 472), Applied Elasticity (ME 583), Advanced Mechanical Engineering Analysis (ME 518), Advanced Vibrations (ME 572), Special Topics: Micromechanics (ME 590), Directed Independent Study (ME 592 and SE 692).

- Advising Senior Capstone Design Project (ME 416)

- Conducting research on (a) developing boundary integral formulation for computing energy eigenvalues for the study of chaos and confined electron states in quantum systems, (b) boundary integral equations for the T-stress and dynamic T-stress, (c) dynamic fracture analysis of auxetic fiber reinforced composites, (d) numerical modeling of aligned carbon nanofiber composites, (e) the solid-phase epitaxial growth of Si-Ge alloy thin films, (f) high-strain rate fracture of heterogeneous materials with micro- and nano-fillers, (g) multi-scale symmetric-Galerkin dynamic fracture analysis, (h) finite element analysis of cyclic AMP signaling, and (i) viscoelastic finite element modeling of the human supraspinatus tendon.

Oak Ridge National Laboratory (ORNL), Tennessee

Research Staff (Computational Sciences and Engineering Division), Feb. 02 – Aug. 02

- Conducted a computational study in support of the Nuclear Regulatory Commission-sponsored verification and validation of the FAVOR probabilistic fracture mechanics code developed at ORNL

- Conducted stress analysis of a biaxial fracture specimen in support of a project with Exxon-Mobil

ORNL (through Oak Ridge Associated Universities), Tennessee

Postdoctoral Research Associate (Computer Science & Math. Division), May 99 – Jan. 02

- Developed the symmetric-Galerkin boundary element method (SGBEM) for 2-D and 3-D elasticity, and for Stokes flow with primary applications to fracture simulations for thermal barrier coatings and functionally graded materials
- Modeled the interface growth instability of the solid phase epitaxy in stressed intrinsic and boron-doped silicon thin films, using the coupling of the SGBEM for anisotropic materials, Stokes flow and level set methods
- Further developed the boundary contour method (BCM) with applications to Stokes flow problems, incompressible elastic materials, and analysis of thin films and layered coatings

Ecole Polytechnique, University of Montreal, Canada

Postdoctoral Researcher (Dept. of Mechanical Engineering), Jan. 98 – April 99

- Conducted research on finite element simulations of machining processes
- Studied a three-dimensional elastic model of virtual milling machines

Research assistant (Dept. of Mechanical Engineering), Sept. 96 – Dec. 97

- Conducted research on stress analysis and shape optimization using the BCM

Cornell University, New York

Visiting Research Assistant (Dept. of Theoretical & Applied Mechanics), Summer 1996

- Conducted research on the BCM with new shape functions

Ho Chi Minh City University of Technology, Vietnam

Lecturer and Associate Dean (Faculty of Mechanical Engineering), 1993 – 1994

- Taught undergraduate (Machine Component Design) and graduate (Finite Element Method in Solid Mechanics, Geometric Modeling) courses
- Coordinated department-wide curricula
- Advised undergraduate students

Renault, Ho Chi Minh City, Vietnam

Consulting Engineer (part-time), 1993

- Studied failure mechanisms associated with typical operating conditions in Vietnam such as poor road conditions and tropical climate
- Recommended new design consideration for improved reliability in the Vietnamese market

Grenoble Institute of Technology (INPG), France

Research assistant, May 92 – June 93

- Developed a new FEM formulation for structural and rotor dynamics to determine the hydraulic load from the measured internal forces on the rotor of a new hydrogen pump model developed at the European Society of Propulsion

Ho Chi Minh City University of Technology, Vietnam

Lecturer (Faculty of Mechanical Engineering), 1984 – 1992
Assistant Lecturer (Faculty of Mechanical Engineering), 1982 – 1984

- Taught undergraduate courses (Machine Component Design, Machine Component Design Project, Strength of Materials, Computer-Aided Design and Drafting using AutoCAD)
- Advised undergraduate students
- Conducted research on computer-aided machine design, on design of mechanisms for impulsive stepless variators, and on a computerized system for pattern digitizing, marker making and plotting in the garment industry

SKILLS

Languages

- Reading and speaking knowledge of English, French and Vietnamese
- Reading knowledge of Russian

Computers

- Platforms: DOS/Windows, Linux and UNIX
- Programming languages: C/C++, Python, FORTRAN and HTML
- Packages: ABAQUS, Algor, ANSYS, AutoCAD, CATIA, I-DEAS, Maple, MATLAB, PATRAN

HONOR AND AWARDS

- Top Prof Award, Mortar Board Honor Society, University of South Alabama, 2025.
- Certificate of Oustanding Contribution in Reviewing, Journal "Engineering Analysis with Boundary Elements", 2018.
- Recognition Award for One of the 50 Outstanding Research during the First 50 Years of the University of South Alabama, 2013.
- Phi Kappa Phi Scholar of the Year Award, University of South Alabama Chapter, 2010.
- Professor of the Year Award, The Alabama Epsilon Chapter of Tau Beta Pi, 2010.
- Excellence in Research Award, University of South Alabama College of Engineering, 2008.
- Best Faculty Member Award, University of South Alabama Council of International Students Organization, 2004-2005.
- Ralph E. Powe Junior Faculty Enhancement Award, Oak Ridge Associated Universities, 2004.
- Who's Who in American Education, 8th Edition, 2007.
- Who's Who in America, 58th Edition, 2004.
- Who's Who in Computational Science and Engineering, 2006.
- AcademicKeys Who's Who in Engineering Education (WWEE), 2005.
- Post-doctoral Research Associates Fellowship, ORNL, 1999-2002.
- Post-doctoral Fellowship, Ecole Polytechnique, University of Montreal, 1998-1999.
- Research Assistantship, Ecole Polytechnique, University of Montreal, 1996-1997.
- Bourse d'Excellence (Ph.D. Fellowship), Government of Quebec, Canada, 1994-1997.
- Bourse de Stage (Graduate Fellowship), Government of France, 1992-1993.

PROFESSIONAL ACTIVITIES

Editorial Board & Related Service

- Guest Editor, Special Issue on the Advances in Mesh Reduction Methods - II, *Engineering Analysis with Boundary Elements*, 2011
- Guest Editor, Special Issue on the Advances in Mesh Reduction Methods - I, *Engineering Analysis with Boundary Elements*, 2010

- Editorial Board Member of Discover Applied Sciences (Engineering)
- Editorial Board Member of ISRN Applied Mathematics
- Editorial Board Member of Advances and Applications in Mechanical Engineering and Technology
- Editorial Review Board Member of Scientific Journals International (SJI)
- Editorial Advisory Board Member of The Open Medical Informatics Journal

Professional Societies

- Member of the American Society of Mechanical Engineers (ASME)
- Member of the United States Association for Computational Mechanics (USACM)
- Member of the International Association for Computational Mechanics (IACM)
- Member of the International Society of Structural and Multidisciplinary Optimization (ISSMO)
- Member of the Honor Society of Phi Kappa Phi by election

Technical Sessions Developed, Chaired & Symposia/Workshops Organized

- Structures and Materials Committee Member of the 7th European Conference for Aeronautics and Space Sciences (EUCASS 2017), Milan, Italy, July 3-6, 2017.
- Structures and Materials Committee Member of the 5th European Conference for Aeronautics and Space Sciences (EUCASS 2013), Munich, Germany, July 1-5, 2013.
- Scientific Committee Member of the 2011 Symposium of the International Association for Boundary Element Methods, Brescia, Italy, September 5-7, 2011.
- Co-organizer and Session Chairman for the minisymposium on Advances in Boundary Element Methods at the 11th U.S. National Congress on Computational Mechanics, Minneapolis, Minnesota, USA, July 25-29, 2011.
- International Scientific Advisory Board Member of the 12th International Conference on Boundary Element and Meshless Techniques, Brasilia, Brazil, July-15, 2011.
- Organizing Committee Member and International Advisory Committee Member of the NSF Workshop on the Emerging Applications and Future Directions of the Boundary Element Method, University of Akron, Cleveland, Ohio, USA, September 1-3, 2010.
- Scientific Advisory Committee Member of the 11th International Conference on Boundary Element Techniques, Berlin, Germany, July 12-14, 2010.

- Session Co-Chairman for the minisymposium on Advances in Boundary Element Methods at the 10th U.S. National Congress on Computational Mechanics, Columbus, Ohio, USA, July 16-19, 2009.
- Session Co-Chairman for the minisymposium on Advances in Boundary Element Methods at the 9th U.S. National Congress on Computational Mechanics, San Francisco, California, USA, July 23-26, 2007.
- Session Co-Chairman for the minisymposium on Advances in Boundary Element Methods at the 8th U.S. National Congress on Computational Mechanics, Austin, Texas, USA, July 24-28, 2005.
- Chairman for the session on 'Magnetic Composites and Thin Films' at the 11th Annual International Conference on Composites/Nano-Engineering (ICCE-11), Hilton-Head Island, South Carolina, USA, August 8-14, 2004.

Professional Service

- Reviewer for Air Force Office of Scientific Research (AFOSR)
- Reviewer for International Journal for Numerical Methods in Engineering
- Reviewer for Communications in Numerical Methods in Engineering
- Reviewer for International Journal of Solids and Structures
- Reviewer for Engineering Fracture Mechanics
- Reviewer for ASME Journal of Applied Mechanics
- Reviewer for ASME Journal of Dynamic Systems, Measurement and Control
- Reviewer for Materials Science and Engineering A
- Reviewer for Engineering Analysis with Boundary Elements
- Reviewer for Applied Mathematical Modelling
- Reviewer for Mechanics Research Communications
- Reviewer for Proceedings A
- Reviewer for Simulation: Transactions of the Society for Modeling and Simulation International
- Reviewer for CMES: Computer Modeling in Engineering & Sciences
- Reviewer for Advances in Engineering Software
- Reviewer for Experimental Mechanics

- Reviewer for Computational Geosciences
- Reviewer for Journal of Materials Engineering and Performance
- Reviewer for Structural Engineering and Mechanics
- Reviewer for SN Applied Sciences
- Reviewer for Technology and Health Care
- Reviewer for Journal of Forensic Biomechanics
- Reviewer for MECCANICA: International Journal of the Italian Association of Theoretical and Applied Mechanics AIMETA
- Reviewer for Electronic Journal of Boundary Elements
- Reviewer for ISRN Applied Mathematics
- Reviewer for Kuwait Journal of Science & Engineering
- Reviewer for The Open Medical Informatics Journal
- Reviewer for IEEE Engineering in Medicine and Biology Magazine
- Reviewer for 2009 ASME International Mechanical Engineering Congress & Exposition (IMECE09)
- Reviewer for ASME Early Career Technical Conference 2009 (ECTC'09)
- Reviewer for ASME Early Career Technical Conference 2007 (ECTC'07)

LIST OF PUBLICATIONS

Peer Reviewed Journal Papers

1. J. D. Phan and A.-V. Phan, 'A boundary integral framework for formulating a generalized eigenvalue problem to efficiently compute confined electron states in quantum dot structures', *Computers and Mathematics with Applications*, **201**, 116-128, (2026). https://doi.org/10.1016/j.camwa.2025.10.022

2. J. D. Phan and A.-V. Phan, 'Generalized Quantum Eigenvalue Formulation for the Neutrino Billiard via Boundary Integral Method', *Optica Open*, 128936 (2025). https://doi.org/10.1364/opticaopen.30698294

3. J. D. Phan and A.-V. Phan, 'Accelerated boundary integral analysis of energy eigenvalues for confined electron states in quantum semiconductor heterostructures', *Engineering Analysis with Boundary Elements*, **169**, 106012, (2024). https://doi.org/10.1016/j.enganabound.2024.106012

4. J. D. Phan and A.-V. Phan, 'A generalized energy eigenvalue problem for effectively solving the confined electron states in quantum semiconductor structures via boundary integral analysis', *Computers and Mathematics with Applications*, **170**, 228-236, (2024). https://doi.org/10.1016/j.camwa.2024.07.010

5. P. Dunn, N. S. Annamdevula, T. C. Rich, S. J. Leavesley and A.-V. Phan, 'A two-dimensional finite element model of intercellular CAMP signaling through gap junction channels', *Journal of Biomechanics*, **152**, 111588, (2023). https://doi.org/10.1016/j.jbiomech.2023.111588

6. M. Karimaghaei, R. Cloutier, A. Khan, J. D. Richardson, and A.-V. Phan, 'A Model-Based Systems Engineering Framework for Quantum Dot Solar Cells Development', *Systems Engineering*, **26**, 279-290, (2023). https://doi.org/10.1002/sys.21655

7. R. Warren, T. C. Rich, S. J. Leavesley and A.-V. Phan, 'A three-dimensional finite element model of cAMP signals', *Forces in Mechanics*, **4**: 100041, (2021). https://doi.org/10.1016/j.finmec.2021.100041

8. M. Karimaghaei and A.-V. Phan, 'Boundary integral formulation of the standard eigenvalue problem for the 2-D Helmholtz equation', *Engineering Analysis with Boundary Elements*, **132**, 281-288, (2021). https://doi.org/10.1016/j.enganabound.2021.07.013

9. A.-V. Phan and M. Karimaghaei, 'A standard energy eigenvalue problem for directly solving the stationary states of quantum billiards via boundary integral analysis', *Forces in Mechanics*, **4**: 100027, (2021). https://doi.org/10.1016/j.finmec.2021.100027

10. T.-T. Phan, T.-K. Nguyen, D.-H. Phan and A.-V. Phan, 'SGBEM analysis of diffraction of P- and SV-waves by a plane crack in an infinite domain', *International Journal of Applied and Computational Mathematics*, **6**: 121, (2020). https://doi.org/10.1007/s40819-020-00877-4

11. N. Stone, S. Shettlesworth, T. C. Rich, S. J. Leavesley and A.-V. Phan, 'A two-dimensional finite element model of cyclic adenosine monophosphate (cAMP) intracellular signaling', *SN Applied Sciences*, **1**: 1713, (2019). https://doi.org/10.1007/s42452-019-1757-9

12. D.-H. Phan, T.-T. Phan, T.-K. Nguyen and A.-V. Phan, 'Dynamic stress intensity factors for multiple parallel cracks in an infinite domain under the passage of a normal incident impact or blast P-wave', *Engineering Analysis with Boundary Elements*, **106**, 75-85, (2019).

13. T.-K. Nguyen, D.-H. Phan, T.-T. Phan and A.-V. Phan, 'Symmetric Galerkin boundary element analysis of the interaction between multiple growing cracks in infinite domains', *Archive of Applied Mechanics*, **88**, 2003-2016, (2018).

14. A.-V. Phan, 'Dynamic stress intensity factor analysis of the interaction between multiple impact-loaded cracks in infinite domains', *AIMS Materials Science*, **3**, 1683-1695, (2016).

15. K.J. Webb, C. A. Wiles, N. Annamdevula, R. Sweat, A. L. Britain, A.-V. Phan, M. I. Townsley, S. J. Leavesley and T. C. Rich, 'A Mathematical Model of Calcium and cAMP Signaling in Pulmonary Microvascular Endothelial Cells', *The FASEB Journal*, **30(1 Supplement)**, 969-26, (2016).

16. K. Kwon and A.-V. Phan, 'Symmetric-Galerkin boundary element analysis of the dynamic T-stress for the interaction of a crack with auxetic inclusions', *Mechanics Research Communications*, **69**, 91-96, (2015).

17. S. Ebrahimi and A.-V. Phan, 'Dynamic crack growth modeling technique based upon the SGBEM in the Laplace domain', *Acta Mechanica*, **226**, 769-781, (2015).

18. S. Ebrahimi and A.-V. Phan, 'Dynamic analysis of cracks using the SGBEM for elastodynamics in the Laplace-space frequency domain', *Engineering Analysis with Boundary Elements*, **37**, 1378-1391, (2013).

19. B. Elmabrouk, J. R. Berger, A.-V. Phan and L. J. Gray, 'Apparent stiffness tensors for porous solids using symmetric Galerkin boundary elements', *Computational Mechanics*, **49**, 411-419, (2012).

20. A.-V. Phan, 'A non-singular boundary integral formula for frequency domain analysis of the dynamic T-stress', *International Journal of Fracture*, **173**, 37-48, (2012).

21. A.-V. Phan, V. Guduru, A. Salvadori and L. J. Gray, 'Frequency domain analysis by the exponential window method and SGBEM for elastodynamics', *Computational Mechanics*, **48**, 615-630, (2011).

22. A.-V. Phan and V. Guduru, 'Boundary element transient analysis of the dynamic T-stress and biaxiality ratio', *Rivista di Matematica della Università di Parma*, **2**, 57-76, (2011).

23. A.-V. Phan, 'A non-singular boundary integral formula for determining the T-stress for cracks of arbitrary geometry', *Engineering Fracture Mechanics*, **78**, 2273-2285, (2011).

24. Y. J. Liu, W. J. Ye, A.-V. Phan, and G. H. Paulino, 'Preface: Special issue on the advances in mesh reduction methods - In honor of Professor Subrata Mukherjee on the occasion of his 65th birthday,' *Engineering Analysis with Boundary Elements*, **35**, 158-158, (2011).

25. A.-V. Phan, L. J. Gray and A. Salvadori, 'Transient analysis of the dynamic stress intensity factors using SGBEM for frequency-domain elastodynamics', *Computer Methods in Applied Mechanics and Engineering*, **199**, 3039-3050, (2010).

26. A.-V. Phan, L. J. Gray and A. Salvadori, 'Symmetric-Galerkin boundary element transient analysis of the DSIFs for the interaction of a crack with a circular inclusion', *Key Engineering Materials*, **454**, 79-96, (2010).

27. V. Guduru, A.-V. Phan and H. V. Tippur, 'Transient analysis of the DSIFs and dynamic T-stress for particular composite materials – Numerical vs experimental results', *Engineering Analysis with Boundary Elements*, **34**, 963-970, (2010).

28. A.-V. Phan, L. J. Gray and A. Salvadori, 'Symmetric-Galerkin boundary element analysis of the dynamic stress intensity factors in the frequency domain', *Mechanics Research Communications*, **37**, 177-183, (2010).

29. D. J. Roberts, A.-V. Phan, H. V. Tippur, L.J. Gray and T. Kaplan, 'SGBEM analysis of fatigue crack growth in particulate composites', *Archive of Applied Mechanics*, **80**, 307-322, (2010).

30. Y. J. Liu, W. J. Ye, A.-V. Phan, and G. H. Paulino, 'Preface: Special issue on the advances in mesh reduction methods - In honor of Professor Subrata Mukherjee on the occasion of his 65th birthday,' *Engineering Analysis with Boundary Elements*, **34**, 902-903, (2010).

31. A.-V. Phan and H. V. Tippur, 'Symmetric-Galerkin boundary element analysis of the QFM stress intensity factors in nanoscale fracture', *Journal of Computational and Theoretical Nanoscience*, **6**, 994-1000, (2009).

32. L. S. Yellapragada , A.-V. Phan and T. Kaplan, 'Fluid-solid interaction finite element modeling of a kinetically driven growth instability in stressed solids', *Archive of Applied Mechanics*, **79**, 457-467, (2009).

33. A.-V. Phan and H. V. Tippur, 'Shape-sensitivity-based evaluation of the stress intensity factors at the nanoscale by means of quantized fracture mechanics', *Mechanics Research Communications*, **36**, 336-342, (2009).

34. A.-V. Phan and S. Mukherjee, 'The multi-domain boundary contour method for interface and dissimilar materials problems', *Engineering Analysis with Boundary Elements*, **33**, 668-677, (2009).

35. A.-V. Phan and S. Mukherjee, 'Boundary contour method fracture analysis of bimaterial interface cracks', *Communications in Numerical Methods in Engineering*, **24**, 1685-1697, (2008).

36. A.-V. Phan, L.J. Gray and T. Kaplan, 'On some benchmark results for the interaction of a crack with a circular inclusion', *ASME Journal of Applied Mechanics*, **74**, 1282-1284, (2007).

37. L. S. Yellapragada, A.-V. Phan and T. Kaplan, 'A sequential fluid-solid weak coupling analysis of the SPE in stressed Si layers', *Mechanics Research Communications*, **34**, 545-552, (2007).

38. R. C. Williams, A.-V. Phan, H. V. Tippur, T. Kaplan and L.J. Gray, 'SGBEM analysis of crack growth and particle(s) interactions due to elastic constants mismatch', *Engineering Fracture Mechanics*, **74**, 314-331, (2007).

39. A.-V. Phan and T.-N. Phan, 'A numerical implementation using mid-node collocation for the hypersingular boundary contour method', *Mechanics Research Communications*, **34**, 201-209, (2007).

40. R. Kitey, A.-V. Phan, H. V. Tippur and T. Kaplan, 'Modeling of crack growth through particulate clusters in brittle matrix by symmetric-Galerkin boundary element method', *International Journal of Fracture*, **141**, 11-25, (2006).

41. A.-V. Phan, C. Machiraju, A. W. Pearsall and S. Madanagopal, 'Viscoelastic studies of human subscapularis tendon: Relaxation test and a Wiechert Model', *Computer Methods and Programs in Biomedicine*, **83**, 29-33, (2006).

42. L. J. Gray, A. Salvadori, A.-V. Phan and V. Mantic, 'Direct evaluation of hypersingular Galerkin surface integrals. II', *Electronic Journal of Boundary Elements*, **4**, 105-130, (2006).

43. A.-V. Phan, L. J. Gray and T. Kaplan, 'Residue approach for evaluating the 3-D anisotropic elastic Green's function: multiple roots', *Engineering Analysis with Boundary Elements*, **29**, 570-576, (2005).

44. A.-V. Phan and T.-N. Phan, 'Boundary contour analysis for surface stress recovery in 2-D elasticity and Stokes flow', *Archive of Applied Mechanics*, **74**, 427-438, (2005).

45. L. J. Gray, A.-V. Phan and T. Kaplan, 'Boundary integral evaluation of surface derivatives', *SIAM Journal on Scientific Computing*, **26**, 294-312, (2004).

46. W. Barvosa-Carter, M. J. Aziz, A.-V. Phan, T. Kaplan and L. J. Gray, 'Interfacial roughening during solid phase epitaxy: Interaction of dopant, stress, and anisotropy effects', *Journal of Applied Physics*, **96**, 5462-5468, (2004).

47. A.-V. Phan, L. J. Gray and T. Kaplan, 'On the residue calculus evaluation of the 3-D anisotropic elastic Green's function', *Communications in Numerical Methods in Engineering*, **20**, 335-341, (2004).

48. A.-V. Phan, J. A. L. Napier, L. J. Gray and T. Kaplan, 'Stress intensity factor analysis of friction sliding at discontinuity interfaces and junctions', *Computational Mechanics*, **32**, 392-400, (2003).

49. A.-V. Phan, J. A. L. Napier, L. J. Gray and T. Kaplan, 'Symmetric-Galerkin BEM simulation of fracture with frictional contact', *International Journal for Numerical Methods in Engineering*, **57**, 835-851, (2003).

50. A.-V. Phan, L. Baron, J. R. R. Mayer and G. Cloutier, 'Finite element and experimental studies of diametral errors in cantilever bar turning', *Applied Mathematical Modelling*, **27**, 221-232, (2003).

51. L.J. Gray, A.-V. Phan, G. H. Paulino and T. Kaplan, 'An improved quarter-point crack tip element', *Engineering Fracture Mechanics*, **70**, 269-283, (2003).

52. A.-V. Phan, L. J. Gray, T. Kaplan and T.-N. Phan, 'The boundary contour method for two-dimensional Stokes flow and incompressible elastic materials', *Computational Mechanics*, **28**, 425-433, (2002).

53. A.-V. Phan, L.J. Gray, T. Kaplan and G. H. Paulino, 'Highly accurate crack tip analysis', *Electronic Journal of Boundary Elements*, **BETEQ 2001**, 51-58, (2002).

54. A.-V. Phan, T. Kaplan, L. J. Gray, D. Adalsteinsson, J.A. Sethian, W. Barvosa-Carter and M. J. Aziz, 'Modelling a growth instability in a stressed solid', *Modelling and Simulation in Materials Science and Engineering*, **9**, 309-325, (2001).

55. J. R. R. Mayer, A.-V. Phan and G. Cloutier, 'Prediction of diameter errors in bar turning: A computationally effective model', *Applied Mathematical Modelling*, **24**, 943-956, (2000).

56. A.-V. Phan, G. Cloutier and J. R. R. Mayer, 'A finite element model for predicting tapered workpiece deflections in turning', *Computer Modeling and Simulation in Engineering*, **4**, 138-142, (1999).

57. G. Cloutier, J. R. R. Mayer and A.-V. Phan, 'Singular function representation in obtaining closed-form solutions to workpiece deflections in turning multi-diameter bars', *Computer Modeling and Simulation in Engineering*, **4**, 133-137, (1999).

58. A.-V. Phan, G. Cloutier and J. R. R. Mayer, 'A finite element model with closed-form solutions to workpiece deflections in turning', *International Journal of Production Research*, **37**, 4039-4051, (1999).

59. A.-V. Phan and T.-N. Phan, 'A structural shape optimization system using the 2-D boundary contour method', *Archive of Applied Mechanics*, **69**, 481-489, (1999).

60. A.-V. Phan and S. Mukherjee, 'On design sensitivity analysis in linear elasticity by the boundary contour method', *Engineering Analysis with Boundary Elements*, **23**, 195-199, (1999).

61. A.-V. Phan and F. Trochu, 'Application of dual kriging to structural shape optimization based on the boundary contour method', *Archive of Applied Mechanics*, **68**, 539-551, 1998.

62. A.-V. Phan, S. Mukherjee and J. R. R. Mayer, 'Stresses, stress sensitivities and shape optimization for two-dimensional linear elasticity by the boundary contour method', *International Journal for Numerical Methods in Engineering*, **42**, 1391-1407, (1998).

63. A.-V. Phan, S. Mukherjee and J. R. R. Mayer, 'The hypersingular boundary contour method for two-dimensional linear elasticity', *Acta Mechanica*, **130**, 209-225, (1998).

64. A.-V. Phan, S. Mukherjee and J. R. R. Mayer, 'A boundary contour formulation for design sensitivity analysis in two-dimensional linear elasticity', *International Journal of Solids and Structures*, **35**, 1981-1999, (1998).

65. A.-V. Phan, S. Mukherjee and J. R. R. Mayer, 'The boundary contour method for two-dimensional linear elasticity with quadratic boundary elements', *Computational Mechanics*, **20**, 310-319, (1997).

66. A.-V. Phan and G. Reynaud, 'Determination of the asynchronous load on a rotor from the measured internal forces', *Journal of Sound and Vibration*, **206**, 15-22, (1997).

67. A.-V. Phan, 'Application of rotation tensor analysis to kinematic study of mechanisms', (in Vietnamese), *Ho Chi Minh City University of Technology Journal of Science and Technology*, **15**, 52-61, (1984).

Conference Publications

1. J.D. Phan and A.-V. Phan, 'Accelerated Boundary Integral Technique for Energy Eigenvalue Analysis in Confined Electron States of Quantum Wires'. *Proceedings of the 6th International Workshop on Model Reduction Techniques (MORTech 2023)*, Nov. 22-24, 2023, École normale supérieure Paris-Saclay, France.

2. P.H. Howze, N.S. Annamdevula, A.-V.Phan, D.J. Pleshinger, T.C. Rich and S.J. Leavesley, 'Improving visualization of cAMP gradients using algorithmic modelling'. *Proceedings of the SPIE Photonics West 2022*, Jan. 22-27, 2022, San Francisco, California, USA.

3. C. Johnson, N. Annamdevula, J. Deal, A.L. Britain, A.-V. Phan, S.J. Leasvesley and T.C. Rich, 'Examining the localization of second messenger signals in living cells'. *Proceedings of the 35th Southern Biomedical Engineering Conference*, Feb. 22-24, 2019, Hattiesburg, Mississippi, USA.

4. T.C. Rich, N. Stone, S. Shettlesworth and A.-V. Phan, 'Mathematical modeling of the spatial spread of cAMP signals within and between pulmonary endothelial cells'. *Proceedings of the American Thoracic Society 2018 Conference*, May 18-23, 2018, San Diego, California, USA.

5. S. Shettlesworth, N. Stone, A.-V. Phan and T.C. Rich, 'Finite Element Analysis of Cyclic AMP Diffusion between Cells'. *Proceedings of the 33rd Southern Biomedical Engineering Conference*, March 17-19, 2017, Gulfport, Mississippi, USA.

6. S. Shettlesworth, K.J. Webb, A.-V. Phan and T.C. Rich, 'A 3-D Finite Element Model of the Synthesis, Degradation and Spatial Spread of cAMP'. *Proceedings of the 16th ASME Early Career Technical Conference*, November 5-6, 2016, Birmingham, Alabama, USA.

7. K. Kwon and A.-V. Phan, 'Dynamic Interaction between a Crack and an Auxetic Inclusion'. *Proceedings of the International Conference on Computational and Experimental Engineering & Sciences*, July 20-24, 2015, Reno, Nevada, USA.

8. R.C. Salter, K.J. Webb, A.-V. Phan and T.C. Rich, 'A Finite Element Model of the Synthesis, Degradation and Spatial Spread of cAMP'. *Proceedings of the 14th ASME Early Career Technical Conference*, November 1-2, 2014, Birmingham, Alabama, USA.

9. S. Ebrahimi and A.-V. Phan, 'Laplace SGBEM Modeling of Dynamic Crack Propagation through a Cluster of Inclusions'. *Proceedings of the 17th U.S. National Congress on Theoretical & Applied Mechanics (USNCTAM-2014)*, June 15-20, 2014, Michigan State University.

10. S. Kim, H. T. Ting and A.-V. Phan, 'Finite Element Analysis of the Interaction between a Crack and Micro-Inclusions in Aligned Carbon Nanofiber Composites'. *Proceedings of the 5th European Conference for Aeronautics and Space Sciences (EUCASS 2013)*, July 1-5, 2013, Munich, Germany.

11. J.R. Berger, M. Adam, I. Reimanis and A.-V. Phan, 'Crack Extension near an Auxetic Particle using Symmetric Galerkin Boundary Elements'. In *Boundary Elements and Other Mesh Reduction Methods XXXV*, edited by C.A. Brebbia and H.-D. Cheng, 2013, pp. 199-208. WIT Press. Southampton, UK.

12. A.-V. Phan and S. Ebrahimi, 'Boundary Element Dynamic Fracture Analysis in the Frequency Domain: Fourier- or Laplace-Space?' *Proceedings of the ASME 2012 International Mechanical Engineering Congress & Exposition*, November 9-15, 2012, Houston, Texas, USA.

13. S. Ebrahimi and A.-V. Phan, 'On peridynamic fracture analysis of unidirectional fiber-reinforced composites'. *Proceedings of the ASME Early Career Technical Conference*, November 2-3, 2012, Atlanta, Georgia, USA.

14. B. Elmabrouk, J.R. Berger, A.-V. Phan and L.J. Gray, "Effective elastic stiffness tensors for porous solids with symmetric Galerkin boundary element analysis." *Proceedings of the 2011 Symposium of the International Association for Boundary Element Methods*, September 5-8, 2011, Brescia, Italy.

15. A. Salvadori, L.J. Gray and A.-V. Phan,"Fast and accurate approximation of derivatives at the boundary via integral equations." *Proceedings of the 2011 Symposium of the International Association for Boundary Element Methods*, September 5-8, 2011, Brescia, Italy.

16. A.-V. Phan, "A non-singular 3-D boundary integral equation for accurately evaluating the T-stresses." *Proceedings of the 11th U.S. National Congress on Computational Mechanics*, July 25-29, 2011, Minneapolis, Minnesota, USA.

17. A.-V. Phan and V. Guduru, 'SGBEM analysis of the dynamic crack growth in particular composite materials'. *Proceedings of the 2011 NSF Engineering Research and Innovation Conference*, January 4-7, 2011, Atlanta, Georgia, USA.

18. A.-V. Phan, 'Non-singular boundary integral equations for evaluating the T-stress and dynamic T-stress'. *Proceedings of the 11th International Conference on Boundary Element Techniques*, July 12-14, 2010, Berlin, Germany.

19. A.-V. Phan, A. Salvadori, L.J. Gray and H.V. Tippur, 'Multiscale Transient Analysis of the DSIFs based on Symmetric-Galerkin BEM Method'. *Proceedings of the Integral Equations: Recent Numerical Developments and New Applications*, October 29-30, 2009, University of Parma, Italy.

20. A. Salvadori, A.-V. Phan and L.J. Gray, 'SIF and T-Stress Computation via Boundary Integral Equations'. *Proceedings of the Integral Equations: Recent Numerical Developments and New Applications*, October 29-30, 2009, University of Parma, Italy.

21. J.T. Maher, G.J. Hickman, S.M. Ramsey, P. Sivapuram and A.-V. Phan, 'Tensile and Compressive Properties of IM7/8552 Monolithic Composite Panels – An Experimental Study Using Notched and Unnotched Specimens'. *ASME Early Career Technical Journal*, October 2009, (**8**, 1), 32.1-32.6.

22. V. Guduru and A.-V. Phan, 'Symmetric Galerkin Boundary Element Transient Analysis of the DSIFs for Particulate Composites'. *ASME Early Career Technical Journal*, October 2009, (**8**, 1), 23.1-23.5.

23. A.-V. Phan, A. Salvadori and L.J. Gray, 'SGBEM-Based multiscale analysis of dynamic stress intensity factors and T-stress'. *Proceedings of 10th U.S. National Congress on Computational Mechanics*, July 16-19, 2009, Columbus, Ohio, USA.

24. V. Guduru and A.-V. Phan, 'A SGBEM-based technique for multiscale dynamic fracture analysis of crack-inclusion interaction'. *Proceedings of the 10th U.S. National Congress on Computational Mechanics*, July 16-19, 2009, Columbus, Ohio, USA.

25. A. Salvadori, A.-V. Phan and L.J. Gray, 'SIF and T-stress computation via boundary integral equations'. *Proceedings of the 12th International Conference on Fracture (ICF 12)*, July 12-17, 2009, Ottawa, Ontario, Canada.

26. A.-V. Phan and H.V. Tippur, 'Hybrid numerical analysis of crack-inclusion interaction in C/SiC nanocomposites under impact loading'. *Proceedings of the 2009 NSF Engineering Research and Innovation Conference*, June 22-25, 2009, Honolulu, Hawaii, USA.

27. A.-V. Phan and H.V. Tippur, 'A multiscale technique for quantized fracture analysis using the SGBEM for elastodynamics'. *Proceedings of the First American Academy of Mechanics Conference*, June 17-20, 2008, New Orleans, Louisiana, USA.

28. P. Sivapuram, I.E. Sampayo and A.-V. Phan, 'A comparative finite element study of the transient response analysis of aerospace composite specimens under impact loading'. *Proceedings of the First American Academy of Mechanics Conference*, June 17-20, 2008, New Orleans, Louisiana, USA.

29. R. Yerram and A.-V. Phan, 'Nanoscale boundary element fracture analysis of particulate composites by means of quantized fracture mechanics'. *Proceedings of the First American Academy of Mechanics Conference*, June 17-20, 2008, New Orleans, Louisiana, USA.

30. A.-V. Phan, H.V. Tippur, T. Kaplan and L.J. Gray, 'SGBEM assessment of the fatigue life of particulate composites'. *Proceedings of the 9th U.S. National Congress on Computational Mechanics*, July 23-26, 2007, San Francisco, California, USA.

31. R.C. Williams, A.-V. Phan, H.V. Tippur, T. Kaplan and L.J. Gray, 'Interactions between a propagating crack and weakly bonded particles'. *Proceedings of the 7th World Congress on Computational Mechanics*, July 16 - 22, 2006, Los Angeles, California, USA.

32. A.-V. Phan and R.C. Williams, 'On an SGBEM-based technique for quasi-static and fatigue crack growth'. *Proceedings of the 9th International Fatigue Congress*, May 14-19, 2006, Atlanta, Georgia, USA.

33. A. Salvadori, A.-V. Phan and L.J. Gray, 'Boundary integral fracture analysis and hypersingular evaluation'. *Proceedings of the 17th AIMeTA Congress of Theoretical and Applied Mechanics*, September 11-15, 2005, Firenze, Italy.

34. A.-V. Phan, R. Kitey and H.V. Tippur, 'SGBEM modeling of crack propagation through a cluster of filler particles'. *Proceedings of the 8th U.S. National Congress on Computational Mechanics*, July 24-28, 2005, Austin, Texas, USA.

35. A.-V. Phan, T. Kaplan and L.J. Gray, 'Stress effect on the solid phase epitaxy in ion-implantation-doped silicon layers'. *Proceedings of the 8th U.S. National Congress on Computational Mechanics*, July 24-28, 2005, Austin, Texas, USA.

36. A. Salvadori, A.-V. Phan and L.J. Gray, 'Boundary integral fracture analysis and hypersingular evaluation'. *Proceedings of the 11th International Conference on Fracture (ICF11)*, March 20-25, 2005, Turin, Italy.

37. L.S. Yellapragada, M.B. Broussard and A.-V. Phan, 'A fluid-solid interaction model of the solid phase epitaxy in stressed Si layers'. *Proceedings of the International Symposium of Research Students on Material Science and Engineering*, December 20-22, 2004, Chennai, India.

38. A.-V. Phan and L.S. Yellapragada, 'Finite element modeling the solid phase epitaxial growth instability in Si-based thin films'. *Proceedings of the ICCE-11 Conference*, August 8-14, 2004, Hilton-Head Island, South Carolina, USA.

39. C. Machiraju, A.-V. Phan, A.W. Pearsall, J.M. Hollis and S. Madanagopal, 'Viscoelastic finite element analysis of human patellar tendon'. *Proceedings of the ASME Southeastern Region XI Technical Conference*, 2004, pp. 12.1-12.5.

40. A.-V. Phan and V. Mallet, 'Modeling the growth of Si-based nanofilms by coupling the boundary contour method and level set Multivac'. *Proceedings of the ICCE-10 Conference*, 2003, pp. 575-576.

41. A.-V. Phan, J.A.L. Napier, L.J. Gray and T. Kaplan, 'SGBEM simulation of friction sliding at discontinuity interfaces and junctions'. *Proceedings of the IABEM 2002 Symposium*, May 28-31, 2002, The University of Texas at Austin, TX, USA.

42. A.-V. Phan, T. Kaplan, L.J. Gray, W. Barvosa-Carter and M.J. Aziz, 'Modeling a growth instability in stressed boron doped silicon'. (Invited paper for special session on Fundamentals in Microsystems), *Technical Proceedings of the Fifth International Conference on Modeling and Simulation of Microsystems*, 2002, pp. 334-337.

43. A.-V. Phan and Y.J. Liu, 'Boundary contour analysis of thin films and layered coatings'. *Abstracts of the Sixth U.S. National Congress on Computational Mechanics*, 2001, pp. 334.

44. A.-V. Phan, L.J. Gray, T. Kaplan and G.H. Paulino, 'Highly accurate crack tip analysis'. in *Advances in Boundary Element Techniques II*, edited by M. Denda, M.H. Aliabadi and A. Charafi, 2001, pp. 371-378. Hoggar, Geneva.

45. S. Saevik, L.J. Gray and A.-V Phan, 'A method for calculating residual and transverse stress effects in flexible pipe pressure spirals'. *Proceedings (OMAE 2001 CD) of the 20th International Conference on Offshore Mechanics and Arctic Engineering*, June 3-8, 2001, Rio de Janeiro, Brazil.

46. E.S. Tan, L.J. Gray and A.-V. Phan, 'Parallel solution of the boundary integral equations for elasticity'. *Proceedings of the European Congress on Computational Methods in Applied Sciences and Engineering*, September 11-14, 2000, Barcelona, Spain.

47. A.-V. Phan, G. Cloutier and J.R.R. Mayer, 'An investigation into diameter error modeling in bar turning'. *Proceedings of the 1999 NSF Design & Manufacturing Grantees Conference*, January 5-8, 1999, Long Beach, CA, U.S.A.

48. A.-V. Phan, S. Mukherjee and J.R.R. Mayer, 'A boundary contour formulation for design sensitivity analysis in two-dimensional linear elasticity'. *Proceedings of the 16th Canadian Congress of Applied Mechanics*, 1997, Vol. 1, pp. 445-446.

49. A.-V. Phan, S. Mukherjee and J.R.R. Mayer, 'The boundary contour method for two-dimensional linear elasticity with quadratic boundary elements'. In *Boundary Element Technology XII*, edited by J.I. Frankel, C.A. Brebbia and M.A.H. Aliabadi, 1997, pp. 75-85. Computational Mechanics Publications, Boston.

50. A.-V. Phan, 'A computerized system for pattern digitizing, marker making and plotting in the garment industry'. *Abstracts of the 5th Scientific Symposium of the Ho Chi Minh City University of Technology*, 1990, pp. 123.

51. A.-V. Phan, 'On computer-aided machine design'. *Abstracts of the 5th Scientific Symposium of the Ho Chi Minh City University of Technology*, 1990, pp. 122.

52. A.-V. Phan, Q.-T. Huynh and H.-S. Le, 'Design and manufacture of an impulsive stepless variator using a driver-coupler-gear mechanism'. *Abstracts of the 5th Scientific Symposium of the Ho Chi Minh City University of Technology*, 1990, pp. 121-122.

Technical Report

B.R. Bass, T.L. Dickson, P.T. Williams, A.-V. Phan and K.L. Kruse, 'Verification and Validation of the FAVOR Code – Deterministic Load Variables (ORNL/NRC/LTR-04/11)'. Prepared for the *U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research*, under Interagency Agreement DOE 1886-N624-4Y, NRC JCN No. Y6244. March 22, 2004.

Textbooks (in Vietnamese)

1. A.-V. Phan, 1994, 'Finite Element Method in Solid Mechanics'. Publisher: Young, Ho Chi Minh City.

2. A.-V. Phan, 1993, 'Computer-Aided Design and Drafting using AutoCAD Release 12'. Publisher: Young, Ho Chi Minh City.

3. A.-V. Phan, 1988, 'Computer-Aided Design and Drafting using AutoCAD Version 2.6'. Publisher: Ho Chi Minh City University of Technology.

RESEARCH FUNDING

1. 'Lung Endothelial Cell Phenotypes', Co-PI, NIH/NHLBI, 2018-2023, $10,027,043, 2P01HL066299 (PI: Troy Stevens)

2. 'G Protein-Coupled Receptor Regulation in Airway Mycoytes', Co-PI, NIH/NHLBI (Subcontract with Thomas Jefferson University), 2019-2023, $577,500, R01HL058506.

3. 'Lung Endothelial Cell Phenotypes', Co-PI, NIH/NHLBI, 2012-2017, $9,092,266, 2P01HL066299 (PI: Troy Stevens)

4. 'Development of Prepreg and Out-Of-Autoclave Process for Z-Aligned Carbon Nanofiber Toughened Lightweight Composites', Co-PI, NASA, 2010-2014, $1,012,555, NNX10AN26A (PI: K.-T. Hsiao).

5. 'Dynamic Fracture Analysis of Aligned CNF Toughened Nanocomposite Materials Using Peridynamics', PI, Alabama Commission on Higher Education, 2012-2013, $25,000.

6. 'FEA of the Dynamic Fracture Behavior of Aligned Carbon Nanofiber Toughened Composites', PI, Alabama Commission on Higher Education, 2012-2013, $25,000.

7. 'Non-Autoclave High-Performance Composite Materials – Manufacturing Process Development, Damage Tolerance Detection and Computational Simulations', PI, NASA, 2009-2011, $200,000, NNM07AA09A-03.

8. 'A Hybrid Technique using FEA and QFM for Dynamic Fracture Modeling of Nanofiber-Reinforced Composites', PI, Alabama Commission on Higher Education, 2008-2010, $43,750.

9. 'Experimental and Modeling Studies of the Fracture Behavior of Nanoparticle Composite Materials', PI, Alabama Commission on Higher Education, 2008-2009, $25,000.

10. 'Collaborative Research: Interactions between a Propagating Matrix Crack and Inclusions in Particulate Composites: Experiments and Modeling', PI, NSF, 2007-2011, $90,423, CMMI-0653796.

11. 'High Strength Composite Materials', PI, NASA, 2006-2009, $813,856, NNM07AA09A-01.

12. 'High-Strain Rate Fracture of Heterogeneous Materials with Micro- and Nano-Fillers: Effect of Particle Size, Shape and Filler-Matrix Adhesion', Co-PI, Army Research Office/DEPSCoR, 2004-2008, $677,528 (USA share: $112,500), W911 NF-04-1-0257.

13. 'Improving the Solid-Phase Epitaxy in Si-Ge Alloys', PI, Oak Ridge Associated Universities/DOE, 2004-2006, $10,000.

14. 'Developing a 3-D Code Coupling Boundary Integral and Level Set Methods for Fracture Modeling and Crystal Growth', PI, Subcontract funded by DOE through Oak Ridge National Laboratory, 2004-2005, $21,804.

15. 'Developing a Boundary Contour Method for Fracture Modeling of Nanoscale Materials', PI, University of South Alabama Research Council, 2003-2004, $5,055.

INVITED SEMINARS

- 'A Hybrid Technique for Transient Analysis of Crack-Inclusion Interaction', Department of Civil Engineering, Architecture, Land and Environment, University of Brescia, Italy, October 28, 2009.

- 'Multiscale Dynamic Fracture Analysis of Particulate Composites', Department of Mechanical, Materials and Aerospace Engineering, University of Central Florida, July 3, 2008.

- 'On Fracture Analysis using the Symmetric-Galerkin Boundary Element Method', Department of Mechanical, Auburn University, September 3, 2004.

- 'Shape Design Optimization using the Boundary Contour Method', Centre for Research on Computation and its Applications (CERCA), Montreal, Canada, November 18, 1998.

- 'On FEM- and BEM-based Meshless Methods', Department of Mechanical, Ecole Polytechnique, University of Montreal, Canada, June 19, 1997.

UNIVERSITY SERVICE (at the University of South Alabama)

1. University level:

    - Founding Faculty Advisor, University of South Alabama Tennis Club (2025 -)

- Founding Faculty Advisor, The University of South Alabama Chapter of the Society of Asian Scientists and Engineers (SASE, 2023-2025)
- Faculty Senate (2013-2016)
- University Grievance Committe (2014-2015)
- Evaluator of the Vietnamese language for the Department of Foreign Languages and Literatures (since 2005)

2. College level:

    - Interim Chair of the Department of Mechanical, Aerospace, and Biomedical Engineering (Dec. 2023 -)
    - Interim Chair of the Department of Mechanical, Aerospace, and Biomedical Engineering (Aug. 2022 - Jan. 2023)
    - Chair Search Commitee (2021-2022)
    - Associate Dean Search Committee (2020-2021)
    - Ad Hoc College/University Vision Statement Committee (2020-2021)
    - Graduate Affairs Committee (2003-2019)
    - Chair of the College Faculty Affairs Committee (2016-2017)
    - College Faculty Affairs Committee (2015-2019)
    - Chair of the College Promotion and Tenure Committee (2013-2014)
    - College Promotion and Tenure Committee (2009-2015,2018-2022)
    - Engineering Computing Committee (2007-2010)
    - Chair Search Commitee (2004-2005)

3. Department level:

    - Comprehensive Chair Review Committee (2020-2021)
    - SAE Faculty Advisor (2019-2020)
    - Graduate Coordinator (2003-2019)
    - Chair of the Graduate Admission Committee (2017-2019)
    - Chair of the Curriculum Committee (2016-2018,2023-)
    - ECE Department Promotion Committee (2023-2024)
    - CCEE Department Ad-Hoc Promotion Committee (2016-2017)
    - Chair of the Mid-Tenure Committee (2016-2017,2018-2020)
    - Chair of the Promotion and Tenure Committee (2019-2020)
    - Chair of the Promotion and Tenure Committee (2015-2016)
    - Mid-Tenure Committee (2020-2021,2023-2024)
    - Promotion and Tenure Committee (2017-2018)

- Promotion and Tenure Committee (2014-2015)
- Chair of the Faculty Search Commitee (2019-2020)
- Chair of the Faculty Search Commitee (2017-2018)
- Chair of the Faculty Search Commitee (2015-2016)
- Chair of the Faculty Search Commitee (2014-2015)
- Chair of the Faculty Search Commitee (2013-2014)
- Chair of the Faculty Search Commitee (2011-2012)
- Faculty Search Commitee (2010-2011)
- Open House Commitee (2004-2009)
- Chair of the Comprehensive Examination Committee (2004-2006,2014-2019)

UNIVERSITY COURSES TAUGHT (at University of South Alabama)

- EG 284: *Dynamics*
- EG 315: *Mechanics of Materials*
- AE 260: *Aerospace Fundamentals*
- AE 361: *Fundamentals of Aerodynamics*
- AE 470: *Aircraft Structural Analysis*
- ME 135: *Engineering Graphics and Communication*
- ME 312: *Mechanical Engineering Thermodynamics*
- ME 328: *Mechanical Engineering Analysis/Numerical Methods*
- ME 416: *Senior Capstone Design Project*
- ME 421: *Mechanical Systems Design*
- ME 426: *Dynamic Systems and Control*
- ME 438/538: *Finite Element Analysis*
- ME 430/530: *Mechanism Synthesis*
- ME 472: *Vibration Analysis and Synthesis*
- ME 518: *Advanced Mechanical Engineering Analysis*
- ME 583: *Applied Elasticity*
- ME 572: *Advanced Vibrations*
- ME 590: *Special Topics: Micromechanics*

- ME 592: *Directed Independent Study*
- SE 692: *Directed Independent Study in Systems Engineering*

SUPERVISORY ACTIVITIES

- Undergraduate Students
  - Julia A. Sanders, *2025 Summer Undergraduate Research Fellowship (SURF).*
  - Patrick Dunn, *Summer Undergraduate Research Fellows Program*, Summer 2022.
  - Jillian Myers, *Summer Undergraduate Research Fellows Program*, Summer 2021.
  - Ryan Warren, *Accelerated Bachelor's to Master's (ABM) Program*, Spring 2020.
  - Steven Shettlesworth, *Summer Undergraduate Research Fellows Program*, Summer 2016.
  - Sean M. Ramsey, *Undergraduate Summer Research Program*, Summer 2009.
  - Gregory J. Hickman, *Undergraduate Summer Research Program*, Summer 2009.
  - John T. Maher, *University of South Alabama Honors Program*, Summer 2007 – present.
  - Kyrick D. Davis, *Engineering and Math Research Scholars Program*, Spring 2005.
  - Mark B. Broussard, *Engineering and Math Research Scholars Program*, Fall 2003 and Spring 2004.
  - Amanda C. Cole, *Undergraduate Summer Research Program*, Summer 2003.
- Ph.D. Dissertations

  Advising:

  - Mina Karimaghaei, 'A Novel Boundary Integral Formulation for Quantum Energy Eigenvalue Analysis using the Time-Independent Schrödinger Equation and Its Application to Model-Based Systems Engineering for Quantum Systems Development', Graduate date: Spring 2022.

  Co-advising:

  - Sebastian Kirmse, 'Towards the Commercialization of a Carbon Fiber Composite Reinforced with Carbon Nanofiber Z-Threads Utilizing a Hybrid Lean Launchpad/Model-based Systems Engineering Approach', Graduate Date: Fall 2019.
  - Kristal Webb, 'The Role of the Spatial Distribution of Intracellular Ca2+ on the Kinetics and Spatial Spread of Agonist-Induced cAMP Signals in PMVECs'.
  - Rajesh Kitey (Auburn University), 'Microstructural Effects on Fracture Behavior of Particulate Composites: Investigation of Toughening Mechanisms using Optical and Boundary Element Methods', Graduate Date: Spring 2006.

- M.S. Theses
  - Ryan Warren, 'Creating Volumetric Meshes from Cross Section Medical Imaging for 3-D Finite Element Analysis of cAMP Intracellular Signaling', Graduate Date: Spring 2021.
  - Nicholas Stone, 'A 2-D Finite Element Model of cAMP Intracellular Signaling and cAMP Transfer through Gap Junction Channels', Graduate Date: Summer 2017.
  - Kibum Kwon, 'Dynamic T-Stress Analysis of the Interaction between a Crack and Auxetic Inclusions', Graduate Date: Summer 2014.
  - Huat Tung (Peyton) Ting, 'Finite Element Analysis of the Crack-Inclusion Interaction in Aligned CNF Composites under Dynamic Loading Conditions', Graduate Date: Summer 2013.
  - Sungmin Kim, 'Finite Element Analysis of the Interaction between a Crack and Clusters of Inclusions in Aligned CNF Composites under Quasi-Static Loading Conditions', Graduate Date: Summer 2013.
  - Sayna Ebrahimi, 'A Dynamic Crack Growth Modeling Technique based upon the SGBEM in the Laplace Domain" Graduate Date: Summer 2013.
  - Vamsi Guduru, 'SGBEM-QFM Hybrid Model for Crack-Inclusion Interaction in Thin Films under Impact Loading Conditions', Graduate Date: Fall 2010.
  - Ines E. Sampayo, 'Dynamic Finite Element Analysis of Stress and Fracture in IM7/8552 Monolithic Composite Laminates under Impact Loading Conditions', Graduate Date: Summer 2010.
  - Rohini Yerram, 'A Study of the Fracture Behavior of Nanocomposites using Molecular Dynamics and Quantized Fracture Finite Element Analysis', Graduate Date: Spring 2008.
  - Praneeth Sivapuram, '8552/IM7 Unidirectional Composites: Tensile/Compressive Strength Characterization and Finite Element Transient Response Analysis of Impact Loading', Graduate Date: Spring 2008.
  - Robert C. Williams, *NASA Space Grant Fellow* and *Engineering and Math Research Scholars Program*, 'A Study on Crack-Particle Interactions in Particulate Reinforced Composites using SGBEM and FEM: Effects of Elastic Constants Mismatch and Dynamic Loading', Graduate Date: Summer 2006.
  - Sang-Min Hong, 'Finite Element Modeling the Solid Phase Epitaxial Growth of Boron-Doped Silicon Layers', Graduate Date: Fall 2005.
  - Lakshmi S. Yellapragada, 'Fluid-Solid Interaction Analysis of the Solid Phase Epitaxial Growth in Si-based Thin Films', Graduate Date: Fall 2005.
- Undergraduate Honors Theses
  - John T. Maher, 'Tensile, Compressive, and Fracture Properties of IM7/8552 Monolithic Composite Panels – Experimental Tests and Parameterized Finite Element Analysis', Graduate Date: Spring 2010.