- Developed the symmetric-Galerkin boundary element method (SGBEM) for 2-D and 3-D elasticity, and for Stokes ow 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 lms, using the coupling of the SGBEM for anisotropic materials, Stokes ow and level set methods

- Further developed the boundary contour method (BCM) with applications to Stokes ow problems, incompressible elastic materials, and analysis of thin lms and layered coatings

Ecole Polytechnique, University of Montreal, Canada

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

- Conducted research on nite 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 Engineering), milling

- Conducted research on on BCM shape Tj/T1_2 1 Tf 2 wi3 1 Tf 5.293 8..786

- Professorof the Year Award, The Alabama Epsilon Chapter of Tau Beta Pi, 2010.
- Excellencein ResearchAward, University of South Alabama College of Engineering, 2008ngineering,

Award, of SoutAlabamaChapter of

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. A.-V. Phan, `Boundary integral formulation of the standard eigenvalue problem for the stationary states of 3-D quantum billiards', (to be submitted).
2. P. Dunn, N.S. Annamdevula, T.C. Rich, S.J. Leavesley and A.-V. Phan, `A two-dimensional nite 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
3. 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
4. R. Warren, T.C. Rich, S.J. Leavesley and A.-V. Phan, `A three-dimensional nite element model of cAMP signals', Forces in Mechanics, 4: 100041, (2021). https://doi.org/10.1016/j.finmec.2021.100041
5. M. Karimaghaei and A.-V. Phan, `Boundary integral formulation of the standard eigen-value 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
6. 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
7. T.-T. Phan, T.-K. Nguyen,

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

33. 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).

34. 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).

35. 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).

36. 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).

37. 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).

38. 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).

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

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

41. 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 e ects', Journal of Applied Physics, 96, 5462-5468, (2004).

42. 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).

58.

7. 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.

8. 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.

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

10. 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.

11. 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.

12. 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.

13. B. Elmabrouk, J.R. Berger, A.-V. Phan and L.J. Gray, "E ective elastic sti ness 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.

14. 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.

15. 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.

16. 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.

17. 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.

41. 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

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)

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:

- Faculty Advisor, The University of South Alabama Chapter of the Society of Asian Scientists and Engineers (SASE, since 2023)
- 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 (2022-2023)
- Chair Search Commitee (2021-2022)
- Associate Dean Search Committee (2020-2021)
- Ad Hoc College/University Vision Statement Committee (2020-2021)
- Graduate A airs Committee (2003-2019)
- Chair of the College Faculty A airs Committee (2016-2017)
- College Faculty A airs 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 Graduate Admission Committee (2017-2019)
- Chair of Curriculum Committee (2016-2018)
- CCEE Department Ad-Hoc Promotion Committee (2016-2017)
- Chair of the

- Chair of the Faculty SearchCommitee (2015-2016)
- Chair of the Faculty SearchCommitee (2014-2015)
- Chair of the Faculty SearchCommitee (2013-2014)
- Chair of the Faculty SearchCommitee (2011-2012)
- Faculty SearchCommitee (2010-2011) Commitee

- Jillian Myers, Summer Undergraduate Research Fellows Program, Summer 2021.
- Ryan Warren, Acceleratedellows 0 (gr)esearch)]TJ /T1_2 1 Tf 3.5893 Td (,)Tj /T1_ ogram, Summer

{ Huat Tung (Peyton) Ting, `Finite Element