

PHILIPPE H. GEUBELLE

Executive Associate Dean

Bliss Professor of Aerospace Engineering

The Grainger College of Engineering (GCOE)

University of Illinois at Urbana-Champaign (UIUC)

306 Engineering Hall, 1308 W. Green Street, Urbana, IL 61801

Email: geubelle@illinois.edu

Web site: <http://ae.illinois.edu/directory/profile/geubelle>

EDUCATION

Ph.D. in Aeronautics (Minor in Materials Science), California Institute of Technology, Pasadena, CA, 1993

Thesis topic: Nonlinear kinematic effects in homogeneous and interfacial fracture

Ph.D. thesis advisor: Professor Wolfgang G. Knauss

M.Sc. in Aeronautics, California Institute of Technology, Pasadena, CA, 1989

B.Sc. in Mechanical Engineering (with highest distinction), Catholic University of Louvain, Belgium, 1988

Thesis topic: Finite element modeling of diaphragm forming of composites

Undergraduate thesis advisor: Professor Marcel Crochet

PROFESSIONAL EXPERIENCE

Administrative experience

Executive Associate Dean, The Grainger College of Engineering (GCOE), UIUC, 1/2019 to present

Key responsibilities/accomplishments:

- Active member of the Dean's leadership team
- Chaired multiple college-wide search committees, including Associate Dean for Marketing and Communication, new Director of Health Care Engineering Systems Center (HCESC), GCOE Director in Chicago, Associate Dean for Advancement, Associate Dean for Graduate and Professional Programs
- In charge of tenure-track and specialized faculty recruiting, retention, promotion, and awards across the Grainger College of Engineering
- Formulated and implemented of the new value-centered college budget model, which provides more transparency and predictability to all college units. Meet regularly with Department Heads to review the financial status of the units.
- Responsible for the international programs of the college, including the educational and research collaboration with Zhejiang University (ZJU) at the ZJU-UIUC Institute (ZJUI) located on the International Campus in Haning, China, where up to 900 undergraduate students and 200 graduate students are working on dual ZJU/UIUC degrees
- Updated the college guidelines on the hiring and promotion of specialized faculty and on named appointments
- Lead the strategic direction in the 5-year plan focused on the professional development and mentoring of faculty members and staff
- Served on multiple campus-level committees, including the Campus Budget Oversight Committee (2016-2022) and the Budget Reform Implementation Committee (2017-present)
- Participated in the President's Executive Leadership Program (PELP) organized by the U. of Illinois System, with about 20 participants selected from the three U. of Illinois campuses

Head, Aerospace Engineering Department, UIUC, 8/2011 to 12/2018

Associate Head of Graduate Programs, Aerospace Engineering Department, UIUC, 2008-2011

Associate Head of Undergraduate Program, Aerospace Engineering Department, UIUC, 2006-2008

- Increased undergraduate enrollment from 350 to 500 students and graduate enrollment from about 80 to almost 200 students
- Recruited 15 tenured/tenure-track faculty members (in a department of about 20 faculty members), including 7 from under-represented groups
- Created on-campus and online professional master's programs, thereby generating additional revenues for the department used to support the PhD program

- Increased departmental endowment by a factor of ten, including the creation of the first departmental professorship
- Placed a major emphasis on academic advising and extra-curricular activities of undergraduate students
- Led a substantial revision of the AE undergraduate curriculum, which places more emphasis on computational skills of the students
- Served as PI for the new 3-storey Talbot Lab Expansion Project to create state-of-the-art instructional laboratories for nanosatellite technology and for composite/additive manufacturing. The new laboratories officially opened in September 2022.

Director of Illinois Space Grant Consortium (ISGC), 2003-2018

- Led a team of academic and public outreach institutions across the State of Illinois in a variety of NASA-sponsored educational programs including scholarships, fellowships, undergraduate research, hands-on course development projects, teacher training, and outreach activities
- Grew the ISGC membership from four to eleven academic institutions and placed a major emphasis on involving academic institutions with large numbers of minority students including Chicago State University, University of Illinois at Chicago, Northern Illinois University, and the City Colleges of Chicago

Academic appointments

Bliss Professor, Aerospace Engineering Department, UIUC, 8/2010 to present.

Visiting Professor, Ecole Polytechnique Fédérale de Lausanne, Switzerland, 1/2011 to 7/2011.

Professor, Aerospace Engineering Department, UIUC, 8/2006 to 8/2010.

Joint appointments in Civil and Environmental Engineering, Mechanical Science and Engineering, Computational Science and Engineering, and the Beckman Institute of Advanced Science and Technology.

Associate Professor, Aerospace Engineering Department, UIUC, 8/2000 to 8/2006.

Visiting Professor, Catholic University of Louvain, Belgium, 2002.

Assistant Professor, Aerospace Engineering Department, UIUC, 1/1995 to 8/2000.

Post-doctoral Research Associate, Division of Applied Sciences, Harvard University, 10/1993 to 12/1994.

Postdoctoral advisor: Professor James R. Rice.

AWARDS and HONORS (since Ph.D.)

2021-22 President's Executive Leadership Program (PELP), U. of Illinois System

Campus Award for Excellence in Guiding Undergraduate Research Award, UIUC, 2014

Best Paper of the Year Award, Fluid Dynamics, AIAA, 2014

American Society of Mechanical Engineers (ASME) Fellow since 2009

AIAA Teacher of the Year Award, UIUC, 1998, 2009

Engineering Council Award for Excellence in Advising, UIUC, 2009, 2010, 2018

Best Paper of the Year Award, Materials Division, ASME, 2007

Stanley H. Pierce Award, College of Engineering, UIUC, 2007

Bliss Faculty Scholar, College of Engineering, UIUC, 2005-2008

Accenture Excellence in Advising Award, UIUC College of Engineering, 2005

Dean's Award for Excellence in Research, UIUC, 1999, 2005

List of Teachers Rated as Excellent by Their Students, UIUC, 1995, 1996, 1997, 1999, 2000, 2001, 2002, 2005, 2007, 2009, 2012, 2015, 2016, 2017

College of Engineering Everitt Teaching Award, UIUC, 2000

American Society of Composites Best Paper Award, 16th Technical Conference, 2001, Polymer Matrix Composite Division

NSF CAREER Award, 1998

N.A.T.O. Postdoctoral Fellowship, 1994

RESEARCH AREAS

Theoretical and computational mechanics, multiscale analysis and design of aerospace materials, composite manufacturing, multiphysics modeling and design of multifunctional materials, fracture and failure mechanics

PUBLICATIONS (Google # of citations: 14,813, Google h-index: 53)

Books

1) Handbook of Peridynamic Modeling. Florin Bobaru, John T Foster, Philippe H Geubelle, Stewart A Silling, CRC Press. 2016.

Book Chapters

- 1) Kardomateas, G. A. and Geubelle, P. H. (2010) "Fatigue and Fracture Mechanics in Aerospace Structures". *Encyclopedia of Aerospace Engineering*. John Wiley & Sons, Ltd., DOI: 10.1002/9780470686652.eae142.
- 2) Lawlor, O. S., Breitenfeld, M. S., Geubelle, P. H., and Zheng, G. (2013) "Crack Propagation Analysis with Automatic Load Balancing". In *Parallel Science and Engineering Applications: The Charm++ Approach*. Edited by Laxmikant V. Kale and Abhinav Bhatele. Chapter 9, pp. 187-210. <http://www.crcpress.com/product/isbn/9781466504127>.
- 3) Breitenfeld, S. M., Geubelle, P. H., Weckner, O., and Silling, S. A. (2016) "Relations Between Peridynamics and Classical Cohesive Models." In *Handbook of Peridynamic Modeling*. Edited by Florin Bobaru, John Foster, Philippe Geubelle and Stewart Silling. Chapter 11, pp. 321-340.
- 4) Zacek, S., Brandyberry, D., Montgomery, C., Shakiba, M., Rossol, M., Najafi, A., Zhang, X., Sottos, N., Geubelle, P. H., Przybyla, C., and Jefferson, G. "Transverse failure of unidirectional composites: sensitivity to interfacial properties." In *Advancing Computational and Experimental Methods for Integrated Computational Materials Engineering (ICME)* S. Ghosh, C. Przybyla and C. Woodward (co-editors), Springer NY (2020), pp. 329-347.
- 5) Agrawal, A., Zacek, S., Nixon, K., Montgomery, C., Geubelle, P. H., Sottos, N., Przybyla, C., and Jefferson, G. "Geometric modeling of transverse cracking of composites." In *Advancing Computational and Experimental Methods for Integrated Computational Materials Engineering (ICME)* S. Ghosh, C. Przybyla and C. Woodward (co-editors), Springer NY (2020), pp. 349-366.

Peer-reviewed Journal Articles

Published or Accepted for Publication

- 1) Geubelle, P. H. and Knauss, W. G. (1994) "Crack propagation at and near bimaterial interfaces: linear analysis". *ASME J. Appl. Mech.*, 61, 560-566.
- 2) Geubelle, P. H. and Knauss, W. G. (1995) "Crack propagation at and near bimaterial interfaces under general loading: nonlinear analysis". *ASME J. Appl. Mech.*, 62:3, 601-606.
- 3) Geubelle, P. H. and Knauss, W. G. (1994) "Finite strains at the tip of a crack in a sheet of hyperelastic material: 1. Homogeneous case". *J. Elasticity*, 35, 31-98.
- 4) Geubelle, P. H. and Knauss, W. G. (1994) "Finite strains at the tip of a crack in a sheet of hyperelastic material: 2. Special bimaterial cases". *J. Elasticity*, 35, 99-137.
- 5) Geubelle, P. H. and Knauss, W. G. (1994) "Finite strains at the tip of a crack in a sheet of hyperelastic material: 3. General bimaterial case". *J. Elasticity*, 35, 139-174.
- 6) Geubelle, P. H. and Knauss, W. G. (1995) "A note related to energy-release rate computations for kinking interface cracks". *ASME J. Appl. Mech.*, 62:1, 266-267.
- 7) Geubelle, P. H. (1995) "Finite deformation effects in homogeneous and interfacial fracture". *Int. J. Solids Structures*, 36:6/7, 1003-1016.
- 8) Geubelle, P. H. and Rice, J. R. (1995) "A spectral method for 3D elastodynamic fracture problems". *J. Mech. Phys. Solids*, 43:11, 1791-1824.
- 9) Morrissey, J. W. and Geubelle, P. H. (1997) "A numerical scheme for mode III dynamic fracture problems". *Int. J. Numer. Meth. Eng.*, 40, 1181-1196.
- 10) Geubelle, P. H., Danyluk, M. J. and Hilton, H. H. (1997) "Dynamic mode III fracture in viscoelastic media". *Int. J. Solids Structures*, 35, 761-782.
- 11) Geubelle, P. H. and Breitenfeld, M. S. (1997) "Numerical analysis of dynamic debonding under anti-plane shear loading". *Int. J. Fracture*, 85, 265-282.
- 12) Danyluk, M. J., Geubelle, P. H. and Hilton, H. H. (1998) "2D and 3D dynamic fracture in viscoelastic media". *Int. J. Solids Structures*, 35:28-29, 3831-3853.
- 13) Geubelle, P. H. (1997) "A numerical method for elastic and viscoelastic dynamic fracture problems in homogeneous and bimaterial systems". *Computational Mechanics*, 20:1-2, 20-25.

- 14) Breitenfeld, M. S. and Geubelle, P. H. (1998) "Numerical analysis of dynamic debonding under 2D in-plane and 3D loading". *Int. J. Fracture*, 93, 13-38.
- 15) Geubelle, P. H. and Baylor, J. (1998) "Impact-induced delamination of composites: a 2D simulation". *Composites B*, 29B, 589-602.
- 16) Breitenfeld, M. S. and Geubelle, P. H. (2000) "Parallel implementation of a spectral scheme for the simulation of 3D dynamic fracture events". *Int. J. High Performance Computing Appl.*, 14:1, 26-38.
- 17) Lin, G., Geubelle, P. H. and Sottos, N. R. (2001) "Simulation of fiber debonding with friction in a model composite pushout test". *Int. J. Solids Structures*, 38:46-47, 8547-8562.
- 18) Geubelle, P. H. and Kubair, D. (2001) "Intersonic crack propagation in homogeneous media under shear-dominated loading: Numerical analysis". *J. Mech. Physics Solids*, 49:3, 571-587.
- 19) Zhu Q., Li M., Geubelle, P. H. and Tucker, C. L. (2001) "Dimensional accuracy of thermoset composites: simulation of process-induced residual stresses". *J. Composite Materials*, 35:24, 2171-2205.
- 20) Li, M., Zhu, Q., Geubelle, P. H. and Tucker, C. L. (2001) "Optimal curing for thermoset matrix composites: thermomechanical considerations". *Polymer Composites*, 22,118-131.
- 21) Zhu Q. and Geubelle, P. H. (2002) "Dimensional accuracy of thermoset composites: shape optimization". *J. Composite Materials*, 36:6, 647-672.
- 22) Wood, B., Loth, E. and Geubelle, P. H. (2002) "A numerical methodology for an aeroelastic supersonic viscous flow". *J. Fluid and Structures*, 16:8, 1127-1144.
- 23) White, S. R., Sottos, N. R., Geubelle, P. H., Moore, J. S., Kessler, M. R., Sriram, S. R., Brown, E. N. and Viswanathan, S. (2001) "Autonomic healing of polymer composites". *Nature*, 409, 794-797.
- 24) Hwang, C. and Geubelle, P. (2000) "A spectral scheme to simulate dynamic fracture problems in composites". *Computer Modeling in Eng. & Science*, 1:4, 45-56.
- 25) Li Z., Bi X., Lambros J. and Geubelle P. H. (2002) "Dynamic fiber debonding and frictional push-out in model composite systems: experimental observations". *Experimental Mechanics*, 42:4, 417-425.
- 26) Kubair, D., Geubelle, P. H. and Huang, Y. (2002) "Intersonic crack propagation in homogeneous media under shear-dominated loading: Theoretical analysis". *J. Mech. Phys. Solids*, 50:8, 1547-1564.
- 27) Kubair, D., Geubelle, P. H. and Huang, Y. (2003) "Analysis of a rate-dependent cohesive model for dynamic crack propagation". *Eng. Fracture Mech.*, 50:5, 685-704.
- 28) Bi, X., Li, Z., Geubelle, P. H. and Lambros, J. (2002) Dynamic fiber debonding and frictional push-out in model composite systems: numerical simulations". *Mechanics of Materials*, 34, 433-446.
- 29) Zhu, Q., Shrotriya, P., Sottos, N. R. and Geubelle, P. H. (2003) "Three-dimensional simulation of viscoelastic response of a woven composite substrate for multilayer PCB". *Composite Science & Technology*, 63:13, 1971-1983.
- 30) Zhang, P., Huang, Y., Geubelle, P. H., Klein, P. A. and Hwang, K. C. (2002) "The elastic modulus of single-wall carbon nanotubes: a continuum analysis incorporating interatomic potentials". *Int. J. Solids Structures*, 39, 3893-3906.
- 31) Zhang P., Huang Y., Geubelle P. H., and Hwang K. C. (2002) "On the continuum modeling of carbon nanotubes". *Acta Mechanica Sinica*, 18:5, 528-536.
- 32) Kubair, D. and Geubelle, P. H. (2003) "Comparative analysis of extrinsic and intrinsic cohesive models of dynamic fracture". *Int. J. Solids Structures*, 40:15, 3853-3868.
- 33) Maiti, S. and Geubelle, P. H. (2002) "Mesoscale modeling of dynamic fracture of ceramic materials". *Computer Modeling in Eng. & Science*, 5:2, 91-101.
- 34) Jiang, H., Zhang, P., Liu, B., Huang, Y., Geubelle, P. H., Gao, H. and Hwang, K. C. (2003) "The effect of nanotube radius on the constitutive model for carbon nanotubes". *Computational Material Science*, 28:3-4, 429-442.
- 35) Kubair, D., Geubelle, P. H. and Lambros, J. (2005) "Asymptotic analysis of a mode III stationary crack in a ductile functionally graded material". *J. Applied Mechanics*, 72:4, 461-467.
- 36) Maiti, S., Rangaswamy, K. and Geubelle, P. H. (2005) "Mesoscale analysis of dynamic fragmentation of ceramics under tension". *Acta Materialia*, 53:3, 823-834.
- 37) Zhang, P., Jiang, H., Huang Y., Geubelle, P. H. and Hwang, K. C. (2004) "An atomistic-based continuum theory for carbon nanotubes: analysis of fracture nucleation". *J. Mech. Physics Solids*, 52:5, 977-998.
- 38) Maiti, S. and Geubelle, P. H. (2005) "A cohesive model for fatigue failure of polymers". *Eng. Fracture Mechanics*, 72:5, 691-708.

- 39) Kandula, S., Abanto-Bueno, J., Geubelle, P. H. and Lambros, J. (2005) "Cohesive modeling of dynamic fracture of functionally graded materials". *Int. J. Fracture*, 132, 275-296.
- 40) Hendrickx, J., Geubelle, P. H. and Sottos, N. R. (2005) "A spectral scheme to simulate the mode III dynamic delamination of thin films". *Eng. Fracture Mech.*, 72:12, 1866-1891.
- 41) Maiti, S. and Geubelle, P. H. (2006) "Cohesive modeling of fatigue crack retardation in polymers: Crack closure effect". *Eng. Fracture Mech.*, 73:1, 22-41.
- 42) Tan, H., Liu, C., Huang, Y., and Geubelle, P. H. (2006) "Effect of nonlinear interface debonding on the constitutive model of composite materials". *International Journal for Multiscale Computational Engineering* 4, 147-167.
- 43) Tan, H., Huang, Y., Liu, C. and Geubelle, P. H. (2005) "The Mori-Tanaka method for composite materials with nonlinear interface debonding". *Int. J. Plasticity*, 21:10, 1890-1918.
- 44) Tan, H., Liu, C., Huang, Y. and Geubelle, P. H. (2005) "The cohesive law for the particle/matrix interfaces in high explosives". *J. Mech. Physics Solids*, 53:8, 1892-1917.
- 45) Jaiman, R. K., Jiao, X., Geubelle, P. H. and Loth, E. (2005) "Assessment of conservative load transfer for fluid-solid interface with non-matching meshes". *Int. J. Numer. Meth. Eng.*, 64, 2014-2038.
- 46) Matous, K. and Geubelle, P. H. (2006) "Multiscale analysis of particle debonding in reinforced elastomers subjected to finite deformation". *Int. J. Numer. Meth. Eng.*, 65, 190-223.
- 47) Kandula, S., Abanto-Bueno, J., Geubelle, P. H. and Lambros, J. (2006) "Cohesive modeling of quasi-static fracture in functionally graded materials". *J. Applied Mechanics*, 73, 783-791.
- 48) Maiti, S., Shankar, C., Geubelle, P. H. and Kieffer, J. (2006) "Continuum- and molecular-level modeling of fatigue crack propagation in self-healing composite". *J. Eng. Mater. Technology*, 128:4, 595-602.
- 49) Jaiman, R. K., Jiao, X., Geubelle, P. H. and Loth, E. (2006) "Conservative load transfer along curved fluid-solid interface with non-matching meshes". *J. Computational Physics*, 218:1, 372-397.
- 50) Matous, K., Inglis, H. M., Gu, X., Ryppl, D., Jackson, T. L. and Geubelle, P. H. (2007) "Multiscale modeling of solid propellants: From particle packing to grain failure." *Composites Science & Technology*, 67:7-8, 1694-1708. DOI: 10.1016/j.compscitech.2006.06.017.
- 51) Dantuluri, V., Maiti, S., Geubelle, P. H., Patel, R. and Kilic, H. (2007) "Cohesive modeling of delamination in Z-pin reinforced composite laminates." *Composites Science & Technology*, 67:3-4, 616-631.
- 52) Matous, K. and Geubelle, P. H. (2006) "Finite element formulation for modeling particle debonding in reinforced elastomers subjected to finite deformations". *Computer Methods in Applied Mechanics and Engineering*, 196:1-3, 620-633.
- 53) Inglis, H., Matous, K., Tan, H., Geubelle, P. H. and Huang, Y. (2007) "Cohesive modeling of dewetting in particulate composites: micromechanics vs. multiscale finite element analysis". *Mech. Materials*, 39:6, 580-595. DOI: 10.1016/j.mechmat.2006.08.008.
- 54) Tan, H., Huang, Y., Liu, C., Ravichandran, G., Inglis, H. M. and Geubelle, P. H. (2007) "The uniaxial tension of particulate composite materials with nonlinear interface debonding." *Int. J. Solids Struct.*, 44:6, 1809-1822. DOI: 10.1016/j.ijsolstr.2006.09.004.
- 55) Roe, B., Haselbacher, A. and Geubelle, P. H. (2007) "Stability of explicit coupled thermal simulations on a moving grid". *Int. J. Numer. Methods in Fluids*, 54, 1097-1117. DOI: 10.1002/fluid.1416.
- 56) Nittur, P., Maiti, S. and Geubelle, P. H. (2008) "Grain-level analysis of dynamic fragmentation of ceramics under multi-axial compression". *J. Mech. Phys. Solids*, 56:3, 993-1017. DOI: 10.1016/j.jmps.2007.06.007.
- 57) Mangala, S., Wilmarth, T., Chakravorty, S., Choudhury, N., Kale, L. V. and Geubelle, P. H. (2008) "Parallel adaptive simulations of dynamic fracture events". *Engineering with Computers*, 24:4, 341-358. DOI: 10.1007/s00366-007-0082-x.
- 58) Matous, K., Kulkarni, M. G. and Geubelle, P. H. (2008) "Multiscale cohesive failure modeling of heterogeneous adhesives". *J. Mech. Phys. Solids*, 56:4, 1511-1533. DOI: 10.1016/j.jmps.2007.08.005.
- 59) Kumar, N. C., Matous, K. and Geubelle, P. H. (2008) "Reconstruction of periodic unit cells of multimodal random particulate composites using genetic algorithms". *Computational Materials Science*, 42:2, 352-367. DOI: 10.1016/j.commatsci.2007.07.043.
- 60) Roe, B., Jaiman, A., Haselbacher, A. and Geubelle, P. H. (2008) "Combined interface boundary condition method for coupled thermal simulations". *Int. J. Numer. Methods in Fluids*, 57:3, 329-354. DOI: 10.1002/fluid.1637.

- 61) Tran, P., Kandula, S., Geubelle, P. H. and Sottos, N. R. (2008) "Hybrid spectral/finite element analysis of dynamic delamination of patterned thin films." *Eng. Fracture Mech.*, 75:14, 4217-4233. DOI: 10.1016/j.engfracmech.2008.03.006.
- 62) Kandula, S. S. V., Hartfield, C. D., Geubelle, P. H. and Sottos, N. R. (2008) "Adhesion strength measurement of polymer dielectric interfaces using laser spallation technique." *Thin Solid Films*, 516:21, 7627-7635. DOI: 10.1016/j.tsf.2008.05.033.
- 63) Brassart, L., Inglis, H. M., Delannay, L., Doghri, I. and Geubelle, P. H. (2009) "An extended Mori-Tanaka homogenization scheme for finite strain modeling of debonding in particle-reinforced elastomers". *Computational Materials Science*, 45, 611-616. DOI: doi:10.1016/j.commatsci.2008.06.021.
- 64) Inglis, H., Geubelle, P. H. and Matous, K. (2008) "Boundary condition effects on multiscale analysis of damage localization." *Phil. Magazine*, 88:16, 2373-2397. DOI: 10.1080/14786430802345645.
- 65) Aragón, A. M., Wayer, J. K., Geubelle, P. H., Goldberg, D. E. and White, S. R. (2008) "Design of microvascular flow networks using multi-objective genetic algorithms". *Comp. Methods Applied Mech. Eng.*, 197, 4399-4410. DOI: 10.1016/j.cma.2008.05.025.
- 66) Subhash, G., Maiti, S., Geubelle, P. H. and Ghosh, D. (2008) "Recent advances in dynamic indentation fracture, impact damage and fragmentation of ceramics". *J. Amer. Ceramic Society*, 91 (9), 2777-2791. DOI: 10.1111/j.1551-2916.2008.02624.x.
- 67) Srinivasan, K., Matous, K. and Geubelle, P. H. (2008) "Generalized finite element method for modeling nearly incompressible bimaterial hyperelastic solids". *Comp. Meth. Applied Mechanics Engg.*, 197, 4882-4893. DOI: 10.1016/j.cma.2008.07.014
- 68) Kulkarni, M., Geubelle, P. H. and Matous, K. (2009) "Multi-scale modeling of heterogeneous adhesives: Effect of particle decohesion". *Mechanics of Materials* 41:5, 573-583. DOI:10.1016/j.mechmat.2008.10.012.
- 69) Wei, Y. and Geubelle, P. H. (2009) "A comparative study of GLS finite elements for solving incompressible fluid flows". *International Journal for Numerical Methods in Fluids*, 61:5, 514-535. DOI: 10.1002/flid.1416.
- 70) Kitey, R., Geubelle, P. H. and Sottos, N. R. (2009) "Mixed-mode interfacial adhesive strength of a thin film on an anisotropic substrate". *Journal of the Mechanics and Physics of Solids*, 57:1, 51-66. DOI: 10.1016/j.jmps.2008.10.002.
- 71) Dooley, I., Mangala, S., Kale, L. and Geubelle, P. H. (2009) "Parallel simulations of dynamic fracture using extrinsic cohesive elements." *Journal of Scientific Computing*, 39:1, 144-165. DOI: 10.1007/s10915-008-9254-0.
- 72) Kandula, S. S. V., Tran, P., Geubelle, P. H. and Sottos, N. R. (2008) "Dynamic delamination of patterned thin films". *Appl. Physics Letters*, 93, 261902-1-3. DOI: 10.1063/1.3056639.
- 73) Aragón, A. M., Duarte, C. A. and Geubelle, P. H. (2009) "Generalized finite element enrichment functions for discontinuous gradient fields". *International Journal for Numerical Methods in Engineering*, 82:2, 242-268. DOI: 10.1002/nme.2772.
- 74) Wu, W., Hansen, C.L., Aragón, A.M., Geubelle, P. H., White, S.R. and Lewis, J.A. (2009) "Direct-write assembly of biomimetic microvascular networks for efficient fluid transport." *Soft Matter Communication*, 6:4, 739-742.
- 75) Tran, P., Kandula, S. S. V., Geubelle, P. H. and Sottos, N. R. "Dynamic delamination of patterned thin films: A numerical study." (2010) *Int. J. Fracture*, 162: 77-90. DOI: 10.1007/s10704-010-9460-2.
- 76) Olugebefola, S. C., Aragón, A. M., Hansen, C. J., Hamilton, A. R., Kozola, B. D., Geubelle, P. H., Lewis, J. A., Sottos, N. R., and White, S. R. (2010) "Polymer-microvascular network composites." *J. Composite Materials*, 44:22, 2587-2603. DOI: 10.1177/0021998310371537.
- 77) Jaiman, R., Geubelle, P. H., Loth, E. and Jiao, X. (2010) "Combined interface boundary condition method for unsteady fluid-structure interaction". *Computational Methods in Applied Mechanics and Engineering*, 200:1-4, 27-39. doi: 10.1016/j.cma.2010.06.039.
- 78) Kulkarni, M. G., Matous, K. and Geubelle, P. H. (2010) "Coupled multi-scale cohesive modeling of heterogeneous adhesives." *International Journal for Numerical Methods in Engineering*, 84, 916-946. doi: 10.1002/nme.2923
- 79) White, S. R. and Geubelle, P. H. (2010) "Self-healing materials: Get ready for repair-and-go." *Nature Nanotechnology*. Vol. 5, April 2010, 247-248. doi:10.1038/nnano.2010.66.
- 80) Srinivasan, K. R., Matous, K., Geubelle, P. H. and Jackson, T. L. (2009) "Thermomechanical modeling of regressing heterogeneous solid propellants." *Journal of Computational Physics*, 228:21, 7883-7901.

- 81) Kitey, R., Sottos, N.R. and Geubelle, P. H. (2010) "A hybrid experimental/ numerical approach to characterize interfacial adhesion in multilayer low-k thin film specimens." *Thin Solid Films*, 519, 337-344.
- 82) Stump, F. V., Karanjaokar, N., Geubelle, P. H., and Chasiotis, I. (2012) "A multiscale model of rate dependence of nanocrystalline thin films." *International Journal of Multiscale Computational Engineering*, 10:5, 441-459.
- 83) Tran, P., Kandula, S. S., Geubelle, P. H. and Sottos, N. R. (2011) "Comparison of dynamic and quasi-static measurements of thin film adhesion." *Journal of Physics D: Applied Physics*, 44, 034006. doi: [10.1088/0022-3727/44/3/034006](https://doi.org/10.1088/0022-3727/44/3/034006).
- 84) Silva, M., Geubelle, P. H. and Tortorelli, D. A. (2011) "Energy release rate approximation using the topological derivative." *Journal of the Mechanics and Physics of Solids*. 59:5, 925-939. doi: 10.1016/j.jmps.2011.03.005.
- 85) Aragón, A. M., Smith, K. J., Geubelle, P. H. and White, S. R. (2011) "Multi-physics design of microvascular materials for active cooling applications." *Journal of Computational Physics*, 230, 5178-5198. doi:10.1016/j.jcp.2011.03.012.
- 86) Jaiman, R., Geubelle, P. H., Loth, E. and Jiao, X. (2011) "Transient fluid-structure interaction with non-matching spatial and temporal discretizations." *Computers and Fluids*, **50:1**, 120-135.
- 87) Soghrati, S., Aragón, A. M., Duarte, C. A. and Geubelle, P. H. (2012) "An interface-enriched generalized finite element method for problems with discontinuous gradient fields." *International Journal for Numerical Methods in Engineering*, 89(8), 991-1008. DOI: 10.1002/nme.3273.
- 88) Lepage, S., Stump, F., Kim, I., and Geubelle, P. H. (2011) "Perturbation stochastic finite element based homogenization of polycrystalline materials." *Journal of Mechanics and Materials Science*, 6 (7-8), 1153-1169.
- 89) Soghrati, S. and Geubelle, P. H. (2012) "A 3D interface-enriched generalized finite element method for weakly discontinuous problems with complex internal geometries." *Computational Methods for Applied Mechanics and Engineering*, 217-220, 46-57. <http://dx.doi.org/10.1016/j.cma.2011.12.010>.
- 90) Ostoich, C. M., Bodony, D. J. and Geubelle, P. H. (2012) "Coupled fluid-thermal response of a spherical dome due to a Mach 6.59 laminar boundary layer." *AIAA Journal*, 50:12, 2791-2808.
- 91) Manjunath, M., Awasthi, A. P. and Geubelle, P. H. (2012) "Wave propagation in random granular chains." *Physical Review E*, 86, 031308. DOI: 10.1103/PhysRevE.85.031308.
- 92) Soghrati, S., Thakre, P. R., White, S. R., Sottos, N. R. and Geubelle, P. H. (2012) "Computational modeling and design of actively cooled microvascular materials." *International Journal of Heat and Mass Transfer*, 55, 5309-5321.
- 93) Awasthi, A., Smith, K., Geubelle, P. H. and Lambros, J. (2012) "Propagation of solitary waves in 2D granular media: a numerical study." *Mechanics of Materials*, 54, 100-112.
- 94) Leonard, A., Daraio, C., Awasthi, A. and Geubelle, P. H. (2012) "Effect of weak disorder on stress-wave anisotropy in centered square nonlinear granular crystals." *Physical Review E*, 86, 031305-1-10. DOI: 10.1103/PhysRevE.86.031305.
- 95) Aragón, A. M., Saksena, R., Kozola, B. D., Geubelle, P. H., Christensen, K. T., and White, S. R. (2013) "Multi-physics optimization of three-dimensional microvascular polymeric components." *Journal of Computational Physics*, 233, 132-147.
- 96) Soghrati, S., Aragón, A. M., and Geubelle, P. H. (2013) "Design of actively-cooled microvascular materials: a genetic algorithm inspired network optimization." *Structural and Multidisciplinary Optimization*, 1-13. DOI:10.1007/s00158-013-1000-z.
- 97) Karanjaokar, N., Stump, F., Geubelle, P. H. and Chasiotis, I. (2013) "A thermally activated model for room temperature creep in nanocrystalline Au films at intermediate stresses." *Scripta Materialia*, 68:8, 551-554. <http://dx.doi.org/10.1016/j.scriptamat.2012.11.017>.
- 98) Wang, E., Geubelle, P. H. and Lambros, J. (2013) "An experimental study of the dynamic elasto-plastic contact behavior of metallic granules." *Journal of Applied Mechanics*, 80, 021009-1-10. DOI:10.1115/1/4007254.
- 99) Aragón, A. M., Soghrati, S., and Geubelle, P. H. (2013) "Effect of in-plane deformation on the cohesive failure of heterogeneous adhesives." *Journal of the Mechanics and Physics of Solids*, 61:7, 1600-1611. <http://dx.doi.org/10.1016/j.jmps.2013.03.003>.
- 100) Makeev, M., Geubelle, P. H., Sottos, N. R. and Kieffer, J. (2013) "Interfacial adhesive properties between a rigid-rod pyromellitimide molecular layer and a covalent semiconductor via atomistic simulations." *ACS Applied Materials & Interfaces*, 5:11, 4702-4711. DOI: 10.1021/am3031163.
- 101) Soghrati, S., Najafi, A. R., Hughes, K. M., Lin, J. H., White, S. R., Sottos, N. R. and Geubelle, P. H. (2013) "Computational analysis of actively-cooled 3D woven microvascular composites using a stabilized interface-

- enriched generalized finite element method.” *International Journal of Heat and Mass Transfer*, 65, 153-164. DOI: 10.1016/j.ijheatmasstransfer.2013.05.054.
- 102) Sucheendran, M., Bodony, D. and Geubelle, P. H. (2014) “Coupled structural-acoustic response of a duct-mounted elastic plate with grazing flow.” *AIAA Journal*, 52:1, 178-194. DOI: <http://arc.aiaa.org/doi/abs/10.2514/1.J052168>.
- 103) Pal, R. K., Awasthi, A. P., and Geubelle, P. H. (2013) “Wave propagation in elasto-plastic granular systems.” *Granular Materials*, 15:6, 747-758. DOI: 10.1007/s10035-013-0449-1.
- 104) Ostoich, C., Bodony, D. J., and Geubelle, P. H. (2013) “Interaction of a Mach 2.25 turbulent boundary layer with a fluttering panel using direct numerical simulation.” *Physics of Fluids*, 25, 110806. DOI: 10.1063/1.4819350. *AIAA Fluid Dynamics 2013 Best Paper Award*.
- 105) Manjunath, M., Awasthi, A. P., and Geubelle, P. H. (2014) “Wave propagation in 2D random granular media.” *Physica D: Nonlinear Phenomena*, 266, 42-48. DOI: <http://dx.doi.org/10.1016/j.physd.2013.10.004>
- 106) Grady, M. E., Geubelle, P. H., and Sottos, N. R. (2014) “Interfacial adhesion of photodefinable polyimide films on passivated silicon.” *Thin Solid Films*, 552, 116-123. DOI: <http://dx.doi.org/10.1016/j.tsf.2013.11.085>.
- 107) Manjunath, M., Awasthi, A. P., and Geubelle, P. H. (2014) “Plane wave propagation in 2D and 3D monodisperse periodic granular media.” *Granular Matter*, 16:1, 141-150. DOI: <http://dx.doi.org/10.1007/s10035-013-0475-z>
- 108) Pal, R. K., Awasthi, A. P. and Geubelle, P. H. (2014) “Characterization of wave propagation in elastic and elasto-plastic granular chains.” *Physical Review E*, 89, 012204-1 to 10. DOI: 10.1103/PhysRevE.89.012204.
- 109) Breitenfeld, M. S., Geubelle, P. H., Weckner, O., and Silling, S. A. (2013) “Non-ordinary state-based peridynamic analysis of stationary crack problems.” *Computer Methods in Applied Mechanics and Engineering*, 272, 233-250.
- 110) Baniassadi, M., Safdari, M., Garmestani, H., Ahzi, S., Geubelle, P. H. and Remond, Y. (2014) “An optimum approximation to n-point correlation functions of random heterogeneous material systems.” *Journal of Chemical Physics*, 140, 074905-1-6.
- 111) Pal, R. K. and Geubelle, P. H. (2014) “Impact response of elasto-plastic granular and continuum systems: A comparative study.” *Mechanics of Materials*, 73, 38-50. <http://dx.doi.org/10.1016/j.mechmat.2014.02.006>.
- 112) Barras, F., Krammer, D. S., Geubelle, P. H., and Molinari J.-F. (2014) “A study of frictional contact in dynamic fracture along bimaterial interfaces.” *International Journal of Fracture*, DOI: 10.1007/s10704-014-9967-z.
- 113) Wang, E., Manjunath, M., Awasthi, A. P., Pal, R. K., Geubelle, P. H. and Lambros, J. (2014) “High-amplitude elastic solitary wave propagation in 1-D granular chains with preconditioned beads: experiments and theoretical analysis.” *Journal of the Mechanics and Physics of Solids*, 72, 161-173. DOI: 10.1016/j.jmps.2014.08.002.
- 114) Grady, M. E., Geubelle, P. H., Braun, P. V., and Sottos, N. R. (2014) “Molecular tailoring of interfacial failure.” *Langmuir*. DOI: [10.1021/la502271k](https://doi.org/10.1021/la502271k).
- 115) Tan, M., Safdari, M., Najafi, A. R., and Geubelle, P. H. (2015) “A NURBS-based interface-enriched generalized finite element scheme for the thermal analysis and design of microvascular composites.” *Computational Methods for Applied Mechanics and Engineering*, 283, 1382-1400. <http://dx.doi.org/10.1016/j.cma.2014.09.008>.
- 116) Manjunath, M., Awasthi, A. P., and Geubelle, P. H. (2014) “A family of plane solitary waves in dimer granular crystals.” *Physical Review E*, 90, 032209. DOI:Artn 032209 DOI:10.1103/Physre.90.032209.
- 117) Pal, R. K., and Geubelle, P. H. (2014) “Wave tailoring by precompression in confined granular systems.” *Physical Review E*, 90, 042204. DOI:Artn 042204 DOI:10.1103/Physre.90.042204.
- 118) Pal, R. K., Morton, J., Wang, E., Lambros, J., and Geubelle, P. H. (2014) “Impact response of elasto-plastic granular chains containing an intruder particle.” *Journal of Applied Mechanics*, 82:1, 011002. DOI: 10.1115/1.4028959.
- 119) Safdari, M., Najafi, A., Sottos, N. R., and Geubelle, P. H. (2015) “An NURBS-based interface-enriched generalized finite element method for problems with complex discontinuous gradient field.” *International Journal of Numerical Methods in Engineering*, 101, 950-964. DOI: 10.1002/nme.4852.
- 120) Soghrati, S., Duarte, C. A. and Geubelle, P. H. (2015) “An adaptive interface-enriched generalized finite element method for the treatment of problems with curved interfaces.” *International Journal of Numerical Methods in Engineering*, 102, 1352-1370. DOI: 10.1002/nme.4860.
- 121) Awasthi, A. P., Wang, Z., Broadhurst, N. R., and Geubelle, P. H. (2015) “Impact response of granular layers.” *Granular Matter*, 17, 21-31. DOI: 10.1007/s10035-015-0547-3.

- 122) Cuba-Ramos, A., Aragón, A. M., Soghrati, S., Geubelle, P. H., and Molinari, J.-F. (2015) “A new formulation for imposing Dirichlet boundary conditions on non-matching meshes.” *International Journal for Numerical Methods in Engineering*, **103**, 430-444. DOI: 10.1002/nme.4898.
- 123) Zhang, K., Najafi, A. R., Jin, J.-M., and Geubelle, P. H. (2015) “An interface-enriched generalized finite element analysis for electromagnetic problems with non-conformal discretizations”. *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*. DOI: 10.1002/jnm.2073.
- 124) Najafi, A. R., Safdari, M., Tortorelli, D. and Geubelle, P. H. (2015) “A gradient-based shape optimization scheme using an interface-enriched generalized FEM.” *Computational Methods in Applied Mechanics and Engineering*, **296**, 1-17. DOI:10.1016/j.cma.2015.07.024.
- 125) Zhang, K., Jin, J.-M., and Geubelle, P. H. (2015) “A 3D interface-enriched generalized FEM for electromagnetic problems with non-conformal discretizations.” *IEEE Transactions on Antennas and Propagation*, **63:12**, 5637-5649.
- 126) Awasthi, A. P., Grady, M. E., Kim, I. H., Sottos, N. R., and Geubelle, P. H. (2016) “Nanoscale mechanical tailoring of interfaces using self-assembled monolayers.” *Mechanics of Materials*, **98**, 71-80.
- 127) Safdari, M., Sottos, N. R., and Geubelle, P. H. (2016) “An NURBS-based generalized finite element scheme for 3D simulation of heterogeneous materials.” *Journal of Computational Physics*, **318**, 373-390.
- 128) Tan, M. H. Y., Najafi, A. R., Pety, S. J., White, S. R., and Geubelle, P. H. (2016) “Gradient-based design of actively-cooled microvascular composite panels.” *International Journal of Heat and Mass Transfer*, **103**, 594-606.
- 129) Zhang, C., Awasthi, A. P., Geubelle, P. H., Grady, M. E., and Sottos, N. R. (2016) “Effects of interface roughness on the cohesive strength of self-assembled monolayers.” *Applied Surface Science*, **397**, 192-198. DOI: <http://dx.doi.org/10.1016/j.apsusc.2016.10.089>.
- 130) Pal, R. K., Waymel, R. F., Geubelle, P. H., and Lambros J. (2017) “Tunable wave propagation in granular crystals by altering lattice network topology.” *Journal of Engineering Materials and Technology*, **139**, 011005-1-7.
- 131) Najafi, A. R., Safdari, M., Tortorelli, D., and Geubelle, P. H. (2017) “Shape optimization using a NURBS-based interface-enriched generalized finite element method”. *International Journal of Numerical Methods in Engineering*, **111:10**, 927-954. doi: 10.1002/nme.5482.
- 132) Zhang, C., Awasthi, A. P., Geubelle, P. H., Sung, J., and Sottos, N. R. (2017) “Multi-scale model of effects of roughness on the cohesive strength of self-assembled monolayers”. *International Journal of Fracture*, **208**, 131-143. doi:10.1007/s10704-017-0221-3.
- 133) Tan, M., and Geubelle, P. H. (2017) “3D dimensionally reduced modeling and gradient-based optimization of microchannel cooling networks.” *Computational Methods in Applied Mechanics and Engineering*, **323**, 230–249. <http://dx.doi.org/10.1016/j.cma.2017.05.024>.
- 134) Pety, S. J., Tan, M. H. Y., Najafi, A. R., Barnett, P. R., Geubelle, P. H., White, S. R. (2017) “Carbon fiber composites with 2D microvascular networks for battery cooling. *International Journal of Heat and Mass Transfer*, **115**, 513-522. <https://doi.org/10.1016/j.ijheatmasstransfer.2017.07.047>.
- 135) Pety, S. J., Tan, M. H., Najafi, A. R., Gendusa, A. C., Barnett, P. R., Geubelle, P. H., and White, S. R. (2017) “Design of redundant microvascular cooling networks for blockage tolerance.” *Applied Thermal Engineering*, **131**, 965-976..
- 136) Barras, F., Geubelle, P. H., and Molinari, J.-F. (2017) “Interplay between process zone and material heterogeneities for dynamic cracks.” *Physical Review Letters*, **119**, 144101.
- 137) Waymel, R. F., Wang, E., Awasthi, A., Geubelle, P. H., and Lambros, J. (2017) “Propagation and dissipation of elasto-plastic stress waves in two-dimensional ordered granular media.” *Journal of the Mechanics and Physics of Solids*. <https://doi.org/10.1016/j.jmps.2017.11.007>.
- 138) Tan, M. H. Y., Bunce, D., Ghosh, A., and Geubelle, P. H. (2018) “Computational design of microvascular radiative cooling panels for nanosatellites. *AIAA Journal of Thermophysics*, **32:3**, 605-616, <http://arc.aiaa.org/doi/abs/10.2514/1.T5381>.
- 139) Alidoost, K., Geubelle, P. H., and Tortorelli, D. A. (2018) “Energy release rate approximation for edge cracks using higher-order topological derivatives.” *International Journal of Fracture*, **210:1-2**, 187-205. <https://doi.org/10.1007/s10704-018-0271-1>.
- 140) Robertson, I. D., Yourdkhani, M., Centellas, P. J., Aw, J. E., Ivanoff, D. G., Goli, E., Lloyd, E. M., Dean, L. M., Sottos, N. R., Geubelle, P. H., Moore, J. S., and White, S. R. (2018) “Rapid energy-efficient manufacturing of

- polymers and composites via frontal polymerization.” *Nature*, **557**, 223-227. <https://doi.org/10.1038/s41586-018-0054-x>.
- 141) Tan, M. H. Y., Najafi, A. R., Pety, S. J., White, S. R., and Geubelle, P. H. (2018) “Multi-objective design of microvascular panels for battery cooling applications” *Applied Thermal Engineering*, **135**, 145-157. <https://doi.org/10.1016/j.applthermaleng.2018.02.028>
- 142) Goli, E., Robertson, I., Geubelle, P. H., and Moore, J. (2018) “Frontal polymerization of dicyclopentadiene: A numerical study.” *J. Physical Chemistry*, **122:16**, 4583-4591. DOI: 10.1021/acs.jpcc.7b12316.
- 143) Barras, F., Carpaij, R., Geubelle, P. H., and Molinari, J.-F. (2018) “Supershear bursts in the propagation of tensile crack in linear elastic material.” *Physics Review E*, **98:6**, 063002-1-8. DOI: 10.1103/PhysRevE.98.063002.
- 144) Goli, E., Robertson, I. D., Agrawal, H., Pruitt, E. L., Grolman, J. M., Geubelle, P. H., and Moore, J. S. (2019) “Frontal polymerization accelerated by continuous conductive elements.” *Journal of Applied Polymer Science*, **136**, 47418. DOI: 10.1002/app.47418.
- 145) Shakiba, M., Brandyberry, D., Zacek, S., and Geubelle, P. H. (2019) “Transverse failure of carbon fiber composites: analytical sensitivity to the distribution of fiber/matrix interface properties.” *International Journal for Numerical Methods in Engineering*, **120**, 650-665. DOI: 10.1002/nme.6151.
- 146) Zhang, X., Brandyberry D. R., and Geubelle, P. H. (2019) “IGFEM-based shape sensitivity analysis of the transverse failure of a composite laminate.” *Computational Mechanics*, **64:5**, 1455-1472. <https://doi.org/10.1007/s00466-019-01726-y>.
- 147) Vyas, S., Goli, E., Zhang, X., and Geubelle, P. H. (2019) “Manufacturing of unidirectional glass-fiber-reinforced composites via frontal polymerization: a numerical study”. *Composites Science and Technology*, **184**, 107832, 1-6. <https://doi.org/10.1016/j.compscitech.2019.107832>.
- 148) Goli, E., Parikh, N. A., Yourdkhani, M., Hibbard, N. G., Moore, J. S., Sottos, N. R., and Geubelle, P. H. (2020) “Frontal polymerization of unidirectional carbon-fiber-reinforced composites.” *Composites Part A*, **130**, 105689 [10.1016/j.compositesa.2019.105689](https://doi.org/10.1016/j.compositesa.2019.105689).
- 149) Fekak, F., Barras, F., Dubois, A., Spielmann, D., Bonamy, D., Geubelle, P. H., and Molinari J.-F. (2020) “Crack front waves: a 3D dynamic response to a local perturbation of tensile and shear cracks.” *Journal of the Mechanics and Physics of Solids*, **135**, 103806. <https://doi.org/10.1016/j.jmps.2019.103806>.
- 150) Alidoost, K., Feng, M., Geubelle, P. H., and Tortorelli, D. A. (2020) “Energy release rate approximation for small surface cracks in three-dimensional domains using the topological derivative.” *Journal of Applied Mechanics*, **87(4)**, 041004-1-12. <https://doi.org/10.1115/1.4045793>.
- 151) Brandyberry, D., Najafi, A., and Geubelle, P. H. (2020) “Multiscale design of 3D nonlinear composites using an interface-enriched generalized finite element method.” *International Journal for Numerical Methods in Engineering*. **121:12**, 2806-2825. DOI: 10.1002/nme.6333.
- 152) Bhaduri, A., Brandyberry, D., Shields, M. D., Geubelle, P. H., and Graham-Brady, L. (2020) “On the usefulness of gradient information in surrogate modeling: Application to uncertainty propagation in composite material models.” *Probabilistic Engineering Mechanics*, **60**, 103024. <https://doi.org/10.1016/j.probengmech.2020.103024>.
- 153) Vyas, S., Zhang, X., Goli, E., and Geubelle, P. H. (2020) “Frontal vs. bulk polymerization of fiber-reinforced polymer-matrix composites” *Composites Science and Technology*, **198**, 108303. <https://doi.org/10.1016/j.compscitech.2020.108303>.
- 154) Goli, E., Gai, T., and Geubelle, P. H. (2020) “Impact of boundary heat losses on frontal polymerization”. *Journal Physical Chemistry B*. **124:29**, 6404-6411. <https://dx.doi.org/10.1021/acs.jpcc.0c03107>.
- 155) Goli, E., Peterson, S. R., and Geubelle, P. H. (2020) “Instabilities driven by frontal polymerization in thermosetting polymers and composites.” *Journal of Composites Part B: Engineering*, **199:15**, 108306. <https://doi.org/10.1016/j.compositesb.2020.108306>.
- 156) Goli, E., Vyas, S., Koric, S., Sobh, N., and Geubelle, P. H. (2020) “ChemNet: A Deep Neural Network for Advanced Composites Manufacturing”. To appear in the Virtual Special Issue “Machine Learning in Physical Chemistry” of the *Journal of Physical Chemistry B*. <https://dx.doi.org/10.1021/acs.jpcc.0c03328>.
- 157) Brandyberry, D., Zhang, X., and Geubelle, P. H. (2021) “A GFEM-based reduced-order homogenization model for heterogeneous materials under volumetric and interfacial damage”. *Computer Methods in Applied Mechanics and Engineering*, **377**, 113690. <https://doi.org/10.1016/j.cma.2021.113690>.

- 158) Najafi, A. R., Safdari, M., Tortorelli, D. A., and Geubelle, P. H. (2021) “Multiscale design of nonlinear materials using a Eulerian shape optimization scheme.” *International Journal for Numerical Methods in Engineering*, DOI: 10.1002/nme.6650.
- 159) Garg, M., Aw, J. E., Zhang, X., Centellas, P. J., Dean, L. M., Lloyd, E. M., Robertson, I. D., Liu, Y., Yourkhani, M., Moore, J. S., Geubelle, P. H., and Sottos, N. R. (2021) “Rapid synchronized fabrication of vascularized thermosets and composites.” To appear in *Nature Communications*.
- 160) Lloyd, E., Feinberg, A. M., Gao, Y., Peterson, S. R., Soman, B., Hemmer, J., Dean, L. M., Wu, Q., Geubelle, P. H., Sottos, N. R., and Moore, J. S. (2021) “Spontaneous patterning during frontal polymerization.” *ACS Central Science*, **7**, 4, 603-612. <https://doi.org/10.1021/acscentsci.1c00110>.
- 161) Kumar, A., Gao, Y., and Geubelle, P. H. (2021) “Analytical estimates of front velocity in the frontal polymerization of thermoset polymers and composites.” *Journal of Polymer Science*, **59**, 1109–1118. <https://doi.org/10.1002/pol.20210155>.
- 162) Gao, Y., Shaon, F., Kumar, A., Bynum, S., Gary, D., Sharp, D., Pojman, J. A., and Geubelle, P. H. (2021) “Rapid frontal polymerization achieved with thermally conductive metal strips.” *Chaos*, **31**, 073113. <https://doi.org/10.1063/5.0052821>.
- 163) Gao, Y., Dearborn, M., Vyas, S., Kumar, A., Hemmer, J., Wang, Z., Wu, Q., Alshangiti, O., Moore, J., Esser-Kahn, A., and Geubelle, P.H. (2021) “Manipulating frontal polymerization and instabilities with phase-changing microparticles.” *The Journal of Physical Chemistry B*, **125**, 7537-7545. <https://doi.org/10.1021/acs.jpccb.1c03899>.
- 164) Gao, Y., Dearborn, M. A., Hemmer, J., Wang, Z., Esser-Kahn, A. P., and Geubelle, P. H. (2021) “Controllable frontal polymerization and spontaneous patterning enabled by phase-changing particles.” *Small*. 20210217:1-9 DOI: 10.1002/smll.202102217.
- 165) Gao, Y., Li, S., Kim, J.-Y., Hoffman, I., Vyas, S., Pojman, J., and Geubelle, P.H. (2022) “Anisotropic frontal polymerization in a model resin/copper composite.” *Chaos*, **32**, 013109. DOI: 10.1063/5.0077552.
- 166) Fonseka, R.D.J.I., Awasthi, A., Lambros, J., and Geubelle, P.H. (2022) “Shockwaves in jammed ductile granular media.” *Journal of Applied Mechanics*, Paper JAM-21-1520, **89**(5), 051003. <https://doi.org/10.1115/1.4053622>.
- 167) Fonseka, R.D.J.I., Geubelle, P.H., and Lambros, J. (2022) “Effect of confinement on the impact response of a granular array.” *Experimental Mechanics*, **62**, 849–862, <https://doi.org/10.1007/s11340-022-00819-9>.
- 168) Roch, T., Barras, F., Geubelle, P. H., and Molinari, J.-F. (2022) “cRacklet: a spectral boundary integral library for interfacial rupture simulation.” *Journal of Open Source Software*, **1** (69), 3724. <https://doi.org/10.21105/joss.03724>.
- 169) Centellas, P. J., Yourdkhani, M., Vyas, S., Koohbor, B., Geubelle, P. H., and Sottos, N. R. (2022) “Rapid multiple-front polymerization of fiber-reinforced polymer composites.” *Composites Part A: Applied Science and Manufacturing*, **158**, 106931. <https://doi.org/10.1016/j.compositesa.2022.106931>.
- 170) En Aw, J., Zhang, X., Nelson, A. Z., Dean, L. M., Yourdkhani, M., Ewoldt, R. H., Geubelle, P. H., and Sottos, N. R. (2022) “Self-regulative, free-form printing enabled by frontal polymerization.” *Advanced Materials Technologies*, 2200230. <https://doi.org/10.1002/admt.202200230>.
- 171) Alidoost, K., Fernandez, F., Geubelle, P. H., and Tortorelli, D. A. (2022) “Fracture-based shape optimization built upon the topological derivative.” *Computer Methods in Applied Mechanics and Engineering*, **395**, 114994. <https://doi.org/10.1016/j.cma.2022.114994>.
- 172) Gao, Y., Rodriguez Koett, L. E., Hemmer, J., Gai, T., Parikh, N., Sottos, N. R., and Geubelle, P. H. (2022) “Frontal polymerization of thin layers on a thermally insulating substrate.” *ACS Applied Polymer Materials*, **4**(7), 4919-4927. <https://doi.org/10.1021/acsapm.2c00497>.
- 173) Brandyberry, D., Zhang, X., and Geubelle, P. H. (2022) “Multiscale design of nonlinear materials using reduced-order modeling.” *Computer Meth. Applied Mech. & Engg.*, **399**, 115388. <https://doi.org/10.1016/j.cma.2022.115388>.
- 174) Topkaya, T., Gao, Y., and Geubelle, P. H. (2022) “Frontal polymerization in short-fiber-reinforced thermoset composites.” To appear in *ACS Applied Polymer Materials*. <https://doi.org/10.1021/acsapm.2c00818>.
- 175) Kumar, A., Dean, L. M., Yourdkhani, M., Guo, A., BenVau, C., Sottos, N. R., and Geubelle, P. H. (2022) “Stress-induced surface pattern formation in frontally polymerized gels.” *Journal of the Mechanics and Physics of Solids*, **168**, 105055, <https://doi.org/10.1016/j.jmps.2022.105055>.
- 176) Gao, Y., Paul, J. E., Chen, M., Hong, L., Chamorro, L. P., Sottos, N. R., and Geubelle, P. H. (2022) “Buoyancy-induced convection driven by frontal polymerization.” To appear in *Physical Review Letters*.

- 177) Centellas, P., Garg, M., Chen, Z., Zhang, X., Parikh, N., Geubelle, P. H., Sottos, N. R. (2022) "Energy-efficient manufacturing of multifunctional vascularized composites." To appear in *Journal of Composite Materials*.

Articles in Conference Proceedings and Technical Reports

- 1) Geubelle, P. H. and Knauss, W. G. (1993) "Crack propagation in homogeneous and bimaterial sheets under general in-plane loading : Nonlinear analysis", in "Ultrasonic Characterization and Mechanics of Interfaces", S. I. Rokhlin, S. K. Datta and Y. D. S. Rajapakse, eds; Proceeding of the 1993 ASME Winter Annual Meeting in New Orleans, LA; Nov.28-Dec.3, 1993.
- 2) Geubelle, P. H. (1994) "Implementation of a 3D elastodynamic boundary-integral code on the CM-5". Mech-240 Report, Division of Applied Sciences, Harvard University.
- 3) Geubelle, P. H., Danyluk, M. J. and Hilton, H. H. "Dynamic Mode 3 Fracture in Viscoelastic Media." Report AAE 96-03, UILU ENG 96-0503.
- 4) Geubelle, P. H. and Breitenfeld, M. S. "Numerical analysis of dynamic debonding under anti-plane shear loading." Report AAE 96-12, UILU ENG 96-0512.
- 5) Geubelle, P. H. "A numerical method for elastic and viscoelastic dynamic fracture problems in homogeneous and bimaterial systems." Report AAE 96-14, UILU ENG 96-0514.
- 6) Jung, D., Hegeman, A., Sottos, N. R., Geubelle, P. H. and White, S. R. (1997) "Self-healing composites using embedded micro-spheres," *Composite and Functionally Graded Materials*, Jacob, K., Katsube, N., and Jones, W., Eds., Vol. MD-80, in Proceedings of the ASME International Mechanical Engineering Conference and Exposition, pp. 265-275.
- 7) White, S. R., Geubelle, P. H. and Tucker, C. L. (1998) "Process optimization for dimensional accuracy for polymer composites." 1998 NSF Annual Report, Grant No. DMI-9610382, June 1998.
- 8) White, S. R., Geubelle, P. H. and Tucker, C. L. (1999) "Process optimization for dimensional accuracy for polymer composites." 1999 NSF Design and Manufacturing Grantee's Conference, Jan. 5-8, 1999, Long Beach, CA.
- 9) Wood, B., Loth, E., and Geubelle, P. H. (1999) "Mesoflaps for aeroelastic transpiration for SBLI control", 37th Aerospace Sciences Meeting, Reno NV, January 1999; AIAA 99-0614.
- 10) Wood, B., Loth, E., and Geubelle, P. H. (1999) "Shock/boundary-layer interaction control with aeroelastic transpiration". 3rd ASME/JSME Joint Fluids Engineering Conference, San Francisco CA, July 17-21, 1999; FEDSM99-6924.
- 11) Geubelle, P. H., Lin, G. and Sottos, N. R. (1999) "Simulation of a fiber pushout test in model polyester/epoxy composite". Proceedings of ICCM-12, Paris, July 5-9, 1999.
- 12) White, S. R., Geubelle, P. H. and Tucker, C. L. (1999) "Process optimization for dimensional accuracy for polymer composites." 1999 NSF Annual Report, Grant No. DMI-9610382, June 1999.
- 13) Geubelle, P. H., Breitenfeld, M. S., Kubair, D. and Hwang, C. (2000) "Simulation of fundamental dynamic fracture problems using a spectral scheme". In *Advances in Computational Engineering & Sciences*. Edited by S. N. Atluri and F. W. Brust. Tech. Science Press. Proceedings of ICES2K held in Anaheim, CA, in August 2000.
- 14) Zhu, Q. and Geubelle, P. H. (2000) "Effects of the manufacturing process on the dimensional accuracy of thermoset composites". Proceedings of ASME IMECE 2000 in Orlando, November 2000.
- 15) Hwang, C. and Geubelle, P. H. (2000) "Subsonic and intersonic crack propagation in unidirectional and cross-ply composites". Proceedings of ASME IMECE 2000 in Orlando, November 2000.
- 16) Wood, B., Loth, E., Geubelle, P. H. and McIlwain, S. (2000) "A numerical methodology for an aeroelastic SBLI Flow". 38th Aerospace Sciences Meeting, Reno, NV, 10-13 January 2000. Paper AIAA 2000-0552.
- 17) Gefroh, D. L., Hafenrichter, E. S., McIlwain, S. T., Loth, E., Dutton, C. J. and Geubelle, P. H. (2000) "Simulation and Experimental Analysis of a Novel SBLI Flow Control System". AIAA Fluid 2000 Conference, 19-22 June 2000, Denver, CO. Paper AIAA 2000-2237.
- 18) Geubelle, P. H., Hwang, C., Fiedler, R., Breitenfeld, M. S. and Haselbacher, A. (2001) "Simulation of dynamic fracture events in solid propellant rockets". 37th AIAA/ASME/SAE/ASEE JPC Conference and Exhibit, July 8-11, 2001. Paper AIAA 2001-3953.
- 19) Lambros, J., Bi X. and Geubelle, P. H., "The mechanics of dynamic fiber push-out: experimental and numerical study", IMECE 2001, New York, NY, November 2001.
- 20) Lambros, J., Bi, X. and Geubelle, P. H. "High-speed debonding and frictional sliding in composite systems: experimental observations and numerical simulations." Proceedings of ICF 10. Honolulu, December 2-7, 2001.

- 21) Geubelle, P. H. and Maiti, S. "Simulation of damage mechanisms in high-speed grinding of structural ceramics." Proceedings of ICF 10. Honolulu, December 2-7, 2001.
- 22) Hwang, C., Massa, L., Fiedler, R. and Geubelle, P. H. "Simulation of convective burning and dynamic fracture in solid propellants." 38th AIAA/ASME/SAE/ASEE JPC Conference and Exhibit, July 7-10, 2002. Paper AIAA 2002-4342.
- 23) Fiedler, R. A., Breitenfeld, M. S., Jiao, X., Haselbacher, A. Geubelle, P. H., Guoy, D. and Brandyberry, M. "Simulations of slumping propellant and flexing inhibitors in solid propellant rocket motors." 38th AIAA/ASME/SAE/ASEE JPC Conference and Exhibit, July 7-10, 2002. Paper AIAA 2002-4341.
- 24) Maiti, S., Rangaswamy, K. and Geubelle, P. H. "Fragmentation of ceramics in rapid expansion mode." In *Fracture Mechanics of Ceramics*, pp. 353-365. Proceedings of the 8th Conference of the Fracture Mechanics of Ceramics. Houston, TX. February 25-28, 2003. Edited by R. C. Bradt, D. Munz, M. Sakai and K. W. White.
- 25) Geubelle, P. H., Maiti, S. and Rangaswamy, K. "Mesoscale modeling of fragmentation of ceramics under dynamic compressive loading. Proceedings of ICF11, Turin, Italy, March 2005.
- 26) Geubelle, P. H., Hendrickx, J. and Sottos, N.R. « Spectral scheme for analysis of dynamic delamination of a thin film." . Proceedings of ICF11, Turin, Italy, March 2005.
- 27) Geubelle, P. H., Dantuluri, V., Koppaka, S.B. and Phinney, L. « Cohesive modeling of adhesion reduction of MEMS cantilevers through laser heating". Proceedings of ICF11, Turin, Italy, March 2005.
- 28) White, S.R., Maiti, S., Jones, A., Brown, E.N., Sottos, N.R. and Geubelle, P. H. « fatigue of self-healing polymers: multiscale analysis and experiments". Proceedings of ICF11, Turin, Italy, March 2005.
- 29) Matous, K., Inglis, H. M., Gu, X., Jackson, T., Rypl, D. and Geubelle, P. H. "Multiscale Damage Modeling of Solid Propellants: Theory and Computational Framework". 41st AIAA/ASME/SAE/ASEE JPC Conference and Exhibit, July 10-13, 2005. Tucson, AZ. Paper AIAA 2005-4347.
- 30) Tan, H., Huang, Y., Geubelle, P. H., Liu, C. and Breitenfeld, M. S. "An Energy Approach to a Micromechanics Model Accounting for Nonlinear Interface Debonding". 41st AIAA/ASME/SAE/ASEE JPC Conference and Exhibit, July 10-13, 2005. Tucson, AZ. Paper AIAA-2005-3995.
- 31) Jaiman, R., Geubelle, P. H., Loth, E. and Jiao, X. M. "Stable and accurate loosely-coupled scheme for unsteady fluid/structure interaction". Paper AIAA-07-334. AIAA Conference, Reno, January 2007.
- 32) Aragón, A. M., Hansen, C. J., Wu, W., Geubelle, P. H., Lewis, J. and White, S. R. "Computational design and optimization of a biomimetic self healing/cooling material." In *Behavior and Mechanics of Multifunctional and Composite Materials 2007*, Edited by M. J. Dapino. Proceedings of SPIE, **6526**. San Diego, CA, March 2007.
- 33) Geubelle, P. H., Inglis, H. M., Kramer, J. D., Patel, J. J., Kumar, N. C. and Tan, H. "Multiscale modeling of dewetting damage in highly filled particulate composites". Proceedings of the 2006 Multiscale and Functionally Graded Materials Conference, October 15-18, 2006, Hawaii. DOI: 10.1063/1.2896776.
- 34) Geubelle, P. H., Maiti, S., Kulkarni, M. and Matous, K. "Multiscale cohesive modeling of fatigue response of a self-healing composite". First International Conference on Self-Healing Materials, Noordwijk, Netherlands, April 2007.
- 35) Kandula, S. S. V., Geubelle, P. H. and Sottos, N. R. "Dynamic adhesion test to measure thin film interface fracture toughness". Society of Experimental Mechanics XI, Orlando, FL, June 2-5, 2008.
- 36) Aragón, A., Geubelle, P. H. and White, S.R. "Bio-mimetic microvascular material for autonomic healing, cooling and sensing applications". Proceedings of the US-Korea Workshop on Bio-Inspired Sensor Technology and Infrastructure Monitoring. June 2008. Jeju, Korea.
- 37) Tran, P., Kandula, S., Geubelle, P. H. and Sottos, N. R. "Dynamic delamination testing of patterned thin films: a combined experimental and numerical study". Proceedings of the 12th International Conference on Fracture, Ottawa, July 12-17, 2009.
- 38) Ostoich C., Bodony, D. J., Geubelle, P. H., « Coupled computational fluid-thermal investigation of hypersonic flow over a quilted dome surface," Bull. Amer. Phys. Soc., Vol 54(19), 2009.
- 39) Sucheendran M., Bodony, D. J., Geubelle, P. H., 'Structural-acoustic interaction of a cavity-backed, clamped, elastic plate with sound in a duct.' Bull. Amer. Phys. Soc., Vol 54(19), 2009.
- 40) Ostoich, C., Bodony, D. J., and Geubelle, P. H. « Development and validation of a first-principles fluid-thermal multi-physics solver for hypersonic boundary layer heat transfer problems . » AIAA Paper 2011-1964, 52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference. April 4-7, 2011, Denver, CO.

- 41) Sucheendran, M., Bodony, D., and Geubelle, P. H. « Structural-acoustic response of a cavity-backed plate in a duct. » AIAA Paper 2011-2015, 52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference. April 4-7, 2011, Denver, CO.
- 42) Sucheendran, M., Bodony, D., and Geubelle, P. H. «Structural-acoustic response of an elastic plate in a duct : Comparison of theory with numerical simulation. » AIAA Paper 2011-2850, 17th AIAA/CEAS Aeroacoustics Conference (32nd AIAA Aeroacoustics Conference). June 5-8, 2011. Portland, OR.
- 43) Ostoich, C., Bodony, D. J., and Geubelle, P. H. « Prediction of heat transfer into a thermally compliant surface in a Mach 5.73 boundary layer using direct numerical simulation. » AIAA Paper 2011-3706. 41st AIAA Fluid Dynamics Conference and Exhibit, June 27-30, 2011, Honolulu, Hawaii.
- 44) Grady, M. E., Sottos, N. R., and Geubelle, P. H., “The Influence of Fabrication Processes on Interfacial Adhesion of a Photodefinable Polyimide.” Proceedings of Semiconductor Research Corporation TECHCON, Austin, September 2011.
- 45) Sucheendran, M., Bodony, D., and Geubelle, P. H. « Coupled structural-acoustic response of a duct-mounted elastic plate with grazing flow. » AIAA Paper 2012-2169. 18th AIAA/CEAS Aeroacoustics Conference (33rd AIAA Aeroacoustics Conference). June 4-6, 2012, Colorado Springs, CO.
- 46) Soghrati, S., Najafi, A., Hughes, K., Thakre, P., Duarte, C. A., Sottos, N. R., White, S. R. and Geubelle, P. H. ‘Computational design of actively-cooled microvascular composites for high temperature application.’ Proceedings of AIAA SDM meeting, Hawaii, April 2012.
- 47) Ostoich C., Bodony, D. J., Geubelle, P. H., ‘Aerothermal analysis of the coupled response of a panel under a supersonic turbulent flow using direct numerical simulation.’ AIAA ASM Meeting, January 2013, Dallas, TX.
- 48) Soghrati, S., Najafi, A., Sottos, N. R., White, S. R., and Geubelle, P. H. ‘Computational design of actively-cooled microvascular composite skin panels for hypersonic aircraft.’ Proceedings of AIAA SDM Meeting, April 2013, Boston, MA.
- 49) Grady, M. E., Geubelle, P. H., Sottos, N. R., “Molecular Tailoring of Interfacial Adhesion Using Self-Assembled Monolayers.” Proceedings of the 13th Annual SEM Conference & Exposition on Experimental & Applied Mechanics, Lombard, IL. June 2013.
- 50) Najafi, A., Coppola, A., Soghrati, S., Sottos, N. R., White, S. R., and Geubelle, P. H. “Microvascular composite skin panels for hypersonic aircraft.” Paper AIAA-2014-0630, AIAA SciTech 2014 Meeting, National Harbor, MD, January 2014.
- 51) Zhang, K., Jin, J.-M., and Geubelle, P. H. “Multiscale modeling of the radar signature of a composite aircraft.” AIAA SciTech 2015 Meeting, Kissimmee, Florida, January 2015.
- 52) Zhang, K., Geubelle, P. H. and Jin, J.-M. “A 3D interface-enriched generalized FEM for EM analysis of composite materials.” 2015 IEEE International Symposium on Antennas and Propagation and North-American Radio Science Meeting. Vancouver, BC, Canada. July 19-25, 2015.
- 53) Zhang, K., Najafi, A. R., Geubelle, P. H. and Jin, J.-M. “A 2D interface-enriched generalized FEM for EM analysis of composite materials.” 2015 IEEE International Symposium on Antennas and Propagation and North-American Radio Science Meeting. Vancouver, BC, Canada. July 19-25, 2015.
- 54) Najafi, A. R., Safdari, M., and Geubelle, P. H. “Structural design using a NURBS-based shape optimization.” AIAA SciTech 2016, San Diego, CA, January 2016.
- 55) Zhan, K., Jin, J.-M., and Geubelle, P. H. “An interface-enriched generalized FEM for EM analysis of composites with nonconformal meshes.” 2016 IEEE/ACES International Conference on Wireless Information Technology and Systems (ICWITS) and Applied Computational Electromagnetics (ACES). Honolulu, HI.

TRANSLATIONAL RESEARCH

Founding member (with UIUC colleagues Prof. Nancy Sottos and Prof. Jeff Moore) in 2021 of **RapiCure Solutions** (<https://www.rapicuresolutions.com>), a start-up company for the commercialization of novel manufacturing methods for composites based on frontal polymerization of the resin.

PATENTS

Patent number: 6858659

Multifunctional autonomically healing composite material

Date of Patent: February 22, 2005

Assignee: The Board of Trustess of the University of Illinois

Inventors: Scott R. White, Nancy R. Sottos, Philippe H. Geubelle, Jeffrey S. Moore, Suresh R. Sriram, Michael R. Kessler, Eric N. Brown

Patent number: 6651935

Method and apparatus for control of shock/boundary-layer interactions

Date of Patent: November 25, 2003

Assignee: The Board of Trustees of the University of Illinois

Inventors: Eric Loth, Philippe H. Geubelle, Scott R. White, Andrew G. Alleyne, Stephen T. McIlwain, J. Craig Dutton, Daniel Tortorelli, David Davis

Publication number: 20030060569

Multifunctional autonomically healing composite material

Publication date: March 27, 2003

Inventors: Scott R. White, Nancy R. Sottos, Philippe H. Geubelle, Jeffrey S. Moore, Suresh R. Sriram, Michael R. Kessler, Eric N. Brown

Patent number: 6518330

Multifunctional autonomically healing composite material

Date of Patent: February 11, 2003

Assignee: Board of Trustees of University of Illinois

Inventors: Scott R. White, Nancy R. Sottos, Philippe H. Geubelle, Jeffrey S. Moore, Suresh R. Sriram, Michael R. Kessler, Eric N. Brown

Method and apparatus for control of shock/boundary-layer interactions

Publication number: 20020190164

Publication date: December 19, 2002

Inventors: Eric Loth, Philippe H. Geubelle, Scott R. White, Andrew G. Alleyne, Stephen T. McIlwain, J. Craig Dutton, Daniel Tortorelli, David Davis

Publication number: 20020111434

Multifunctional autonomically healing composite material

Publication date: August 15, 2002

Inventors: Scott R. White, Nancy R. Sottos, Philippe H. Geubelle, Jeffrey S. Moore, Suresh R. Sriram, Michael R. Kessler, Eric N. Brown

GRADUATE ADVISEES

Former advisees

DANYLUK, M. J. Visco-elastodynamic fracture using a spectral method. M. S. Thesis. P. H. Geubelle, advisor (1996).

BAYLOR, J. S. A numerical simulation of impact-induced damage of composites. M. S. Thesis. P. H. Geubelle, advisor (1997).

HEGEMAN, A. J. Self-repairing polymers: repair mechanisms and micro-mechanical modeling. M. S. Thesis. S. R. White and P. H. Geubelle, advisors (1997).

BREITENFELD, M. S. Simulations of dynamic failure of interfaces using a spectral method. M. S. Thesis. P. H. Geubelle, advisor (1997).

WOOD, B. Aeroelastic simulations of a novel bleeding system for supersonic inlets. M. S. Thesis. P. H. Geubelle and E. Loth, advisors (1999).

VISWANATHAN, S. Micromechanical modeling of self-healing polymeric composites. M. S. Thesis. P. H. Geubelle, advisor (2000).

ZHU, Qi Dimensional accuracy of thermoset polymer composites: Process simulation and optimization. Ph.D. Thesis. P. H. Geubelle, advisor (2000).

ZACZEK, Mariusz Adaptive cohesive volumetric finite element method for dynamic fracture simulations. M.S. Thesis. P. H. Geubelle, advisor (2001).

- KUBAIR, Dharendra Cohesive modeling of dynamic fracture: rate dependence and intersonic crack motion. Ph.D. Thesis. P. H. Geubelle, advisor (2001).
- THOMAS, Jay Multi-scale spectral/molecular dynamics simulation of dynamic fracture in brittle materials. M.S. Thesis. P. H. Geubelle, advisor (2002).
- MAITI, Spandan Grain-level simulation of dynamic failure in ceramic materials. Ph.D. Thesis. P. H. Geubelle, advisor (2002).
- OZHAKAYA, Lale Flutter analysis of a single flap system under supersonic flow. M.S. Thesis. P. H. Geubelle, advisor (2003)
- KANDULA, Soma Cohesive modeling of fracture in functionally graded materials. M.S. Thesis. P. H. Geubelle, advisor (2004)
- BI, Xiaopeng Dynamic fiber debonding and push-out in model composites. Ph.D. Thesis. P. H. Geubelle and J. Lambros, co-advisors (2003)
- DANTULURI, Venkata Cohesive modeling of delamination in Z-pin reinforced composites. M.S. Thesis. P. H. Geubelle, advisor (2004)
- MANGALA, Sandhya Dynamic fracture simulations with adaptive mesh modification in parallel framework. M.S. Thesis. P. H. Geubelle, advisor (2006)
- ROE, Brad Coupled thermal simulations of fluid-structure problems. M.S. Thesis. P. H. Geubelle, advisor (2006)
- DEWEY, H. Heath Large-scale three-dimensional simulations of aeroelastic phenomena. M.S. Thesis. P. H. Geubelle, advisor (2006)
- NITTUR, Parag G. Mesoscale analysis of fragmentation of ceramics under dynamic multiaxial compression. M.S. Thesis. P. H. Geubelle, advisor (2006)
- KUMAR, Natarajan Genetic algorithm based reconstruction of periodic unit cells of random particulate composites. M.S. Thesis. P. H. Geubelle, advisor (2006)
- JAIMAN, Rajeev Accuracy and stability of transient multiphysics simulations. Ph.D. Thesis, P. H. Geubelle and E. Loth, co-advisors (2007)
- KANDULA, Soma Delamination of thin film patterns using laser-induced stress waves. Ph.D. thesis, N. R. Sottos and P. H. Geubelle, co-advisors (2008)
- SRINIVASAN, Karthik, Thermomechanical meso-scale modeling of combustion of heterogeneous solid propellants. Ph.D. thesis, P. H. Geubelle, K. Matous and T. Jackson, co-advisors (2008)
- INGLIS, Helen (ME) Multiscale modeling of the effect of debonding on the constitutive response of heterogeneous materials. Ph.D. thesis, P. H. Geubelle, advisor (2008)
- PATEL, Jay (AE) Deterministic and stochastic analysis for debonding of fibrous composites using micromechanics modeling M.S. thesis, P. H. Geubelle, advisor (2009)
- KULKARNI, Mohan. (AE) Multiscale cohesive modeling of heterogeneous adhesives. Ph.D. thesis, P. H. Geubelle and K. Matous, co-advisors (2009).
- TRAN, Phuong. (TAM) Laser-induced delamination test protocol for thin films: modeling and experiments. Ph.D. thesis, P. H. Geubelle and N. R. Sottos, co-advisors (2010).
- ARAGON, Alejandro. (CEE) Computational design of microvascular materials for active cooling. Ph.D. thesis, P. H. Geubelle, advisor (2010).
- SALVARASU, Preamsainath. (AE) Role of residual stresses and inelasticity on dynamic delamination of thin films. M.S. thesis. P. H. Geubelle, advisor (2011).
- SUSHEENDRAN, Mahesh (AE) Structural/acoustic coupled analysis of thin-walled aerospace structures. Ph.D. thesis. P. H. Geubelle and D. Bodony, co-advisors (2013)
- OSTOICH, Christopher (AE) Multi-physics modeling of thermal/fluid/solid coupling in hypersonic vehicles. Ph.D. thesis, D. Bodony and P. H. Geubelle, co-advisors (2013)
- SOGHRATI, Soheil (CEE) An interface-enriched generalized finite element method for the design of actively-cooled microvascular composites. Ph.D. thesis. P. H. Geubelle, advisor (2013)
- STUMP, Fernando (TAM) Multiscale modeling of rate dependence and size effects on nanocrystalline metallic thin films. Ph.D. thesis. P. H. Geubelle, advisor (2013)
- BREITENFELD, M. Scot (AE) Quasi-static non-ordinary state-based peridynamics for the modeling of 3D fracture. Ph.D. thesis. P. H. Geubelle, advisor (2013)
- CARABA, Elena (CS) Computational modeling and simulation of composite materials based on tomographic images. Ph.D. thesis. M. Heath and P. H. Geubelle, co-advisors (2014)

- MANJUNATH, Mohith (AE) Wave tailoring granular materials: effect of randomness and plane wave propagation. Ph.D. thesis. P. H. Geubelle, advisor (2014)
- PAL, Raj Kumar (TAM) Wave tailoring in elastic and elasto-plastic granular systems. Ph.D. thesis. P. H. Geubelle, advisor (2014)
- POTUKUCHI, Sri Krishna (AE) Cohesive finite element modeling of a single fiber pullout experiment. M.Sc. thesis. P. H. Geubelle, advisor (2015).
- NAJAFI, Ahmad Raeisi (TAM) Multiscale design of nonlinear materials using a shape optimization scheme based on an interface-enriched GFEM. Ph.D. thesis. P. H. Geubelle, advisor (2016).
- ZACEK, Scott (AE) Impact of microstructural statistics on the failure of unidirectional composites. M.S. Thesis. P. H. Geubelle, advisor (2017).
- TAN, Marcus H. Y. (TAM) IGFEM-based modeling and design of microvascular composites with complex embedded networks. Ph.D. thesis. P. H. Geubelle, advisor (2017).
- ZHANG, Kedi (ECE) Finite-element simulation of composite materials and large-scale scattering problems. Ph.D. thesis. Jianming Jin and P. H. Geubelle, co-advisors (2017).
- ZHANG, Chen (AE) Molecular tailoring of delamination properties of thin films using self-assembled monolayers: Multiscale modeling. Ph.D. thesis, P. H. Geubelle, advisor (2017).
- KLEPACKI, Anthony (ME) Mesoscale modeling of transverse failure in carbon/epoxy composites. M.S. Thesis. P. H. Geubelle, advisor (2018).
- AGRAWAL, Angel (AE, MS) A geometrical model of transverse failure of composites. M.S. Thesis. P. H. Geubelle, advisor (2019).
- VYAS, Sagar K. (AE) Manufacturing of glass-fiber-reinforced dicyclopentadiene-matrix composites via frontal polymerization. M.S. Thesis. P. H. Geubelle, advisor (2020).
- GOLI, Elyas (CEE) Manufacturing of thermosetting polymers and composites using frontal polymerization: a numerical study. Ph.D. thesis, P. H. Geubelle, advisor (2020).
- ALIDOOST, Kazem (TAM, Ph.D.) The topological derivative and its application to fracture-based analysis and design. Ph.D. thesis, P. H. Geubelle, advisor. Co-advised with Daniel Tortorelli (MechSE) (2020).
- BRANDYBERRY, David (AE) IGFEM-based reduced-order modeling and design of nonlinear composites. Ph.D. thesis, P. H. Geubelle, advisor (2020)

Current graduate advisees

- VYAS, Sagar (AE, Ph.D.) Optimization of composite manufacturing processes based on frontal polymerization.
- FONSEKA, Devanjith (AE, Ph.D.) Active granular meta-material for impact protection. Co-advised with John Lambros (AE)
- ZAKOWOROTNY, Michael (AE, Ph.D.) Thermo-chemo-structural modeling of frontal polymerization in gels.
- ZHU, Matthew (CEE, Ph.D.) Multiphysics modeling of a growth manufacturing process based on frontal polymerization.

UNDERGRADUATE RESEARCH ADVISEES

P. Lee (AAE)	1997-1998
M. Zaczek (AAE)	1998
D. Perveiler (AAE)	2000
C. Navarro (AAE)	2001
W. Harris (AAE)	2001-2002
J. Kowtko (AAE)	2001, 2002
M. Anderson (AAE)	2003
W. Bauer (AAE)	2003-2004
Y. Chew (AE)	2004
J. Gu (CS)	2004-2005
R. Page (AE)	2005
B. Collins (MIE)	2005
D. Ofman (ECE)	2005
S. Stetak (CS)	2005
J. Kramer (MechSE)	2006
J. Patel (AE)	2006-2007

J. Wayer (AE)	2007
A. Lovero (GE)	2007
J. Honcharovich (AE)	2007
B. O'Rourke (CS)	2007
K. Smith (AE)	2008-2009
I. Kim (AE)	2008-2009
A. Kuester (AE)	2008
E. Helaire (CS)	2009
M. Srinivasan (AE)	2009
N. Broadhuis (MatSE)	2010
N. Parillo (AE)	2010
Z. Wang (AE)	2011
M. Kandel (ECE)	2011-2012
K. Hughes (MechSE)	2011-2012
L. Gomes (AE)	2012
P. Braslauskas (AE)	2012
E. Anderson (AE)	2012-2013
D. Bandyberry (AE)	2013
J. Hsu (MatSE)	2013
J. Morton (AE)	2013
M. Ciancio (AE)	2014
K. Weiskircher (AE)	2014-2015
M. Feng (AE)	2013-2016
A. Agrawal (AE)	2016
Y. Lu (AE)	2016
L. Yafi (AE)	2016
N. Hibbard (AE)	2017
Y. Long (AE)	2017-2018
M. Cui (AE)	2017-2018
S. Tan (AE)	2018-2019
K. Nixon (AE)	2018-2019
S. Peterson (AE)	2018-2020
S. Xiong (AE)	2019
W. Suk (MatSE)	2019-2020
G. Aaron (AE)	2020
C. Benvau (MatSE)	2020-2022
T. Kim (AE)	2020-2021
M. Gryga (AE)	2021
M. Chen (AE)	2021-2022
G. Debrun (Physics)	2022-present

POST-DOCTORAL RESEARCH ASSOCIATES AND VISITING SCHOLARS

- G. Lin, Postdoctoral Research Associate, 1998-1999, China, Senior developer at Ansys, Pittsburgh, PA
- C. Hwang, Postdoctoral Research Associate, 1999-2003, Korea, Currently a faculty member at Seoul Information Technology University
- S. Maiti, Postdoctoral Research Associate, 2002-2005, India. Currently Associate Professor in the Department of Bioengineering, University of Pittsburgh.
- K. Matous, Research Scientist, 2003-2009, Currently Associate Professor, Mechanical Engineering, U. Notre Dame
- S. Breitenfeld, Research Programmer, 1999-2008. Currently at HDF Group in Champaign, IL
- R. Arciniega, Postdoctoral Research Associate, 2006, Abaqus, Providence, RI.
- J. Hendrickx, Visiting Scholar, 2005, Currently faculty member, Catholic University of Louvain, Belgium
- A. Gurol, Visiting Scholar, 2007
- Y. Wei, Visiting Faculty, China, 2007-2008

- A. Aragón, Postdoctoral Research Associate, 2010-2011. Currently Associate Professor at T. U. Delft.
- A. Awashti, Postdoctoral Research Associate, 2010-2014.
- M. Safdari, Postdoctoral Research Associate, 2013-2015. Currently at Illinois Rocstar, Champaign, IL.
- F. Barras, Visiting Scholar, 2014, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland
- D. Spielmann, Visiting Scholar, 2015, EPFL
- M. Shakiba, Postdoctoral Research Associate, 2016. Currently faculty member in Civil Engineering at Virginia Tech.
- X. Zhang, Postdoctoral Research Associate, 2018-2019. Currently faculty member in Mechanical Engineering at U. Wyoming
- R. Carpaïj, Visiting Scholar, 2017, EPFL
- G. Landron, Visiting Scholar, 2019-2020, École Normale Supérieure Paris-Saclay
- J. Hemmer (co-advised with Nancy R. Sottos), Beckman Postdoctoral Fellow, 2019-2021
- A. Kumar, Postdoctoral Research Associate, 2020-2022
- Y. Gao, Postdoctoral Research Associate, 2019-present
- Q. Liu, Postdoctoral Research Associate, 2022-present

INVITED, NON-CONFERENCE TALKS

- “A spectral scheme for three-dimensional dynamic fracture problems”. University of Delaware, Solid Mechanics Seminar Series. November 8, 1996.
- “Simulation of 3D dynamic fracture events”. University of Michigan, Department of Aerospace Engineering. February 1997.
- “Numerical simulation of dynamic fracture : Spectral scheme”. University of Illinois, AAE Departmental Graduate Seminars. November 1998.
- “Numerical simulation of dynamic fracture : Cohesive/volumetric finite element scheme”. Center for the Simulation of Advanced Rockets, University of Illinois. March 1999.
- “Fundamental problems in dynamic fracture mechanics”. University of Illinois, Department of Theoretical and Applied Mechanics. March 9, 2000.
- “Spectral-based simulations of 2D and 3D fundamental dynamic fracture problems”. University of Notre Dame. Department of Aerospace Engineering. April 4, 2000.
- “Numerical analysis of dynamic fracture”. Washington University in St. Louis. Department of Mechanical Engineering. Sept. 14, 2000.
- “Simulation of dynamic fracture events”. Northwestern University. Solid Mechanics Seminar. Dec.1, 2000.
- “Simulation of dynamic fracture events in solid propellant rockets”. University of Iowa. Mechanical Systems Graduate Seminar. November 1, 2001.
- “A self-healing composite”. C.R.I.F. Solid Mechanics Seminar. Sart-Tilman, Liège, Belgium. November 23, 2001.
- “Dynamic failure of solid propellant rockets”. Los Alamos National Lab. Combustion Seminar. December 13, 2001.
- “Numerical modeling of dynamic fracture”. CESAME Seminar Series, Catholic University of Louvain, Belgium. October 15, 2002
- “Self-healing composite concept”. Materials Research Seminar Series, Max Planck Institute, Stuttgart, Germany. November 2002.
- “Failure of a self-healing composite under monotonic and fatigue loading”, University of Notre Dame, December 2003.
- “Monotonic and fatigue failure of a self-healing composite”, Johns Hopkins University, March 2004.
- “Failure of a self-healing composite under monotonic and fatigue loading: experiments and cohesive modeling”, University of Maryland, March 1, 2005.
- “Fatigue response of a self-healing composite: experiments and multiscale modeling”, Brown University, April 4, 2005.
- “Multiscale cohesive modeling of self-healing composite”, Michigan Tech., April 21, 2005.
- “Multiphysics modeling of solid propellant rockets”, ADD, TaeJong, South Korea, May 2006.
- “Cohesive modeling of fracture”, Korea Aerospace Research Institute, TaeJong, South Korea, May 2006.
- “Numerical modeling of fluid/structure interaction”, National Technical University Pusang, South Korea, May 2006.
- “Stable and accurate modeling of transient fluid/structure interaction events”, Mechanical Engineering Department Seminar, University of California Riverside. February 23, 2007.

- “A biomimetic self-healing composite material: Fatigue response and multiscale cohesive modeling “. Mechanical and Materials Engineering Seminar. Washington State University, Pullman, WA. April 5, 2007.
- “Fatigue response of a biomimetic self-healing material: experimental observations and multiscale cohesive modeling” Departmental seminar, Department of Mechanical and Aerospace Engineering, University of Notre Dame, South Bend, IN, November 2007.
- “A new class of biomimetic self-healing/cooling polymeric materials”. Departmental seminar, Aerospace Engineering, University of Michigan, Ann Arbor, MI. November 20, 2008.
- “Stable and accurate modeling of transient fluid/structure interaction events”, Aeronautical Engineering Department Seminar, Purdue University. April 2, 2009.
- “Large-scale modeling and computational design of wave tailoring granular media”. LSMS Seminar, EPFL, Lausanne, Switzerland, January 11, 2011.
- “Biomimetic materials for self-healing and active cooling applications: experimental observations and multiscale modeling.” Computational Science and Engineering Seminar, ETH, Zurich, April 12, 2011.
- “Biomimetic materials for self-healing and active cooling applications: experimental observations and multiscale modeling.” Materials Science Seminar, EPFL, Lausanne, May 16, 2011.
- “An interface-enriched generalized finite element method (GFEM) for thermal and structural modeling of heterogeneous materials.” The Boeing Company, Seattle, June 2, 2011.
- “Energy release rate approximation using the topological derivative.” The Boeing Company, Seattle, June 3, 2011.
- “Microvascular composites for high temperature applications.” Graduate Seminar, Aerospace Engineering Department, University of Michigan, January 2012
- “Microvascular composites for high temperature applications.” Navy Research Labs, Washington, DC, February 2012.
- “Microvascular composites for high temperature applications.” Aerospace Seminar, Texas A&M University, Sept. 27, 2012.
- “Microvascular composites for high temperature applications.” Graduate Seminar, Department of Mechanical and Materials Engineering, University of Nebraska-Lincoln, April 2, 2013.
- “Multi-disciplinary analysis and design of heterogeneous materials using an Interface-enriched Generalized Finite Element approach.” Navy Research Labs, Washington, DC, February 2014.
- “Microvascular composites for high temperature applications.” Graduate Seminar, Civil Engineering Department, Vanderbilt University, April 21, 2015.
- “Microvascular composites for high temperature applications.” Graduate Seminar, School of Aeronautics and Astronautics, Purdue University, September 24, 2015.
- “Computational analysis of design of microvascular composites for high temperature applications.” Graduate Seminar, Department of Aerospace Engineering, Georgia Institute of Technology, October 29, 2015.
- “Computational Analysis and Design of Actively Cooled Microvascular Composites for High Temperature Applications.” Departmental Seminar, Aerospace Engineering, Embry-Riddle. April 22, 2016.
- “Computational analysis and design of microvascular composites for high temperature applications” Departmental Seminar, Department of Energy and Mechanics, Universidad Autónoma de Occidente, Cali, Colombia. September 20, 2016.
- “Computational analysis and design of biomimetic microvascular composites” Director’s Seminar, Beckman Institute of Advanced Science and Technology, University of Illinois. November 10, 2016.
- “Multi-functional microvascular composites: Computational analysis and design” Distinguished Seminar Series, Department of Aerospace Engineering, University of Washington, Seattle, January 30, 2017.
- “Multiscale shape optimization of microstructures using an interface-enriched generalized finite element method.” Departmental Seminar, Mechanical Engineering, T.U. Delft, Netherlands, March 23, 2017.
- “Multi-functional microvascular composites: Computational analysis and design.” Invited seminar, Cenaero, Gosselies, Belgium. November 20, 2017.
- Southwest Mechanics Lecture Series, invited seminars at Texas A&M University (March 5, 2018), U. Texas Austin (March 6, 2018), U. Texas Dallas (March 8, 2018), and U. Texas Arlington (March 9, 2018).
- “Faster, energy-efficient of manufacturing of composites using frontal polymerization”. LMS Seminar, Ecole Polytechnique, Paris, France. August 31, 2018.
- “Faster, energy-efficient manufacturing of fiber-reinforced composites using frontal polymerization”. University of Virginia, Department of Mechanical and Aerospace Engineering, April 18, 2019.

“Multifunctional microvascular polymeric metric composites”. Jean Mandel Symposium. Ecole Polytechnique, Paris, June 20, 2019.

“Faster, energy-efficient manufacturing of fiber-reinforced composites based on frontal polymerization”. Distinguished Mechanical Engineering Seminar, University of Houston, February 13, 2020.

“Faster and energy-efficient manufacturing of thermoset composites”. Vebleo Webinar on Materials Science, Engineering and Technology. March 20, 2021.

“Frontal polymerization: A faster and energy-efficient way to manufacture thermoset composites” Departmental seminar, Department of Aerospace Engineering, University of Illinois. October 25, 2021.

“Frontal polymerization: A faster and energy-efficient manufacturing method for thermoset composites” Departmental seminar, Department of Aerospace Engineering, Texas A&M University. November 11, 2021.

“Frontal polymerization: A faster and energy-efficient way to manufacture and 3D print thermoset polymers and composites.” Departmental Seminar, Department of Aerospace Engineering, Worcester Polytechnic Institute, April 1, 2022.

GRANTS, CONTRACTS AND GIFTS RECEIVED

For Research

Years	Brief Title or Description	Source of Funds	Total funding	Funding Allocated to this Professor	# of PI's & Lead PI if not this Professor
97-01	Experimental and Analytical Investigation of Dynamic Fiber Pull-Out in Composites	NSF	\$252,000	\$110,000	2 (P. Geubelle, PI)
97-07	ASCI Center for the Simulation of Advanced Rockets	DOE	\$40,000,000	\$1,800,000	20 (M. Heath, PI)
97-00	Dimensional Stability and Optimization of Composite Manufacturing	NSF	\$305,000	\$100,000	3 (S. White, PI)
97-99	Preliminary Numerical Design of Smart Bleeding System for Supersonic Inlets (2-year CSE Fellowship – Brett Wood, Graduate Student)	CSE, U OF I	\$50,000	\$50,000	2 (P. Geubelle, PI)
98-02	High Speed Grinding of Ceramics	NSF (Career Award)	\$208,000	\$208,000	1 (P. Geubelle, PI)
98	Smart Mesoflaps for Aeroelastic Transpiration for SBLI Flow Control	AFOSR	\$85,401	\$20,000	5 (E. Loth, PI)
99-02	Smart Mesoflaps for Aeroelastic Transpiration for SBLI Flow Control	DARPA	\$2,120,318	\$200,000	6 (E. Loth, PI)
98-00	Health Monitoring and Maintenance of Composite Structures	U OF I, CRI	\$200,000	\$50,000	3 (S. White, PI)
99-01	Development of Self-Healing Structural Composite Materials	AFOSR	\$85,662	\$20,000	4 (S. White, PI)
01-04	Dynamic Fracture of Functionally Graded Materials	NSF	\$330,000	\$100,000	3 (G. Paulino, PI)
01-02	Dynamic Failure of Z-Pinned Composite Laminates	AFOSR (SBIR – Phase I)	\$200,000	\$20,000	1 – Academic consultant for AdTech Syst., Dayton, OH
03-04	Quasi-Static and Dynamic Failure of Z-Pinned Composite Laminates	AFOSR (SBIR – Phase II)	\$700,000	\$130,000	1 – Subcontract for AdTech Syst., Dayton, OH
01-05	A Finite Element Framework for Very Large Scale Dynamic Fracture Simulations on the IBM BlueGene	NSF	\$750,000	\$95,000	4 (L. Kale, PI)

02-05	Multiscale Modeling of Fatigue Response of Self-Healing Structural Composite	AFOSR (MEANS)	\$900,000	\$250,000	3 (S. White, PI)
03-04	Development of a CVFE code for the simulation of dynamic response of a LNG insulation system	American Bureau of Shipping	\$30,000	\$30,000	1 (P. Geubelle, PI)
04-07	Thin film fracture and decohesion in micro- and nano-patterned devices	NSF	\$165,000	\$70,000	2 (N. Sottos, PI)
05-10	MURI- Microvascular autonomic composite	AFOSR	\$5,467,683	\$500,000	11 (S. White, PI)
05-08	Multiscale Experimental and Numerical Design of a Self-Healing Epoxy Adhesive	NSF	\$310,000	\$120,000	4 (P. Geubelle, PI)
05-07	Multiscale modeling of damage in solid propellants	ATK-Thiokol	\$288,770	\$140,000	2 (K. Matous, PI)
06-11	Midwest Structural Science Center	AFRL	\$2,175,000	\$350,000	8 (G. Paulino and J. Lambros, PIs)
06-09	Impact MEMS Center	DARPA	\$800,000	\$60,000	10 (A. Cangelaris, PI)
07-10	GOALI: Dynamic adhesive failure of patterned thin films	NSF	\$300,000	\$120,000	2 (N. Sottos, PI)
08-11	Development of a laser spallation protocol for rapid characterization of interface reliability	SRC	\$216,687	\$100,000	2 (N. Sottos, PI)
09-12	Experiments and models on room temperature creep of nanocrystalline metallic films	NSF	\$398,521	\$180,000	2 (I. Chasiotis, PI)
09-12	Development of peridynamics scheme for fracture problems and application to multiscale modeling of materials	Boeing	\$308,551	\$308,551	(P. Geubelle, PI)
09-14	MURI – Development of wave tailoring materials	ARO	\$4,500,000	\$750,000	6 (J. Lambros, PI)
09-14	MURI – Development of hybrid materials for high-temperature applications	AFOSR	\$4,500,000	\$350,000	15 (D. Lagoudas (TA&M), PI)
10-12	IRI – Multiscale modeling and assessment of polymeric coatings and adhesive systems	IRI	\$500,000	\$150,000	3 (P. Geubelle, PI)
12-18	Center of Excellence of Integrated Multiscale Modeling of Materials (Lead Institution: Johns Hopkins University)	AFOSR/AFRL	\$1,110,669	\$550,000	2 (P. Geubelle and N. Sottos)
12-13	Computational Modeling and Simulation of Composite Materials Based on Tomographic Images (RA Support for Elena Caraba, CS)	CSE	\$60,000	\$60,000	2 (P. Geubelle and M. Heath)
12-15	Efficient Energy Release Rate Computations for Cracks with Arbitrary Location and Geometry	NSF	\$323,719	\$161,000	2 (D. Tortorelli, PI)
12-15	Molecular Tailoring of Interface Fracture	NSF	\$340,979	\$150,000	2 (N. Sottos, PI)
13-15	Multiscale modeling of an aircraft with morphing radar signature (RA Support for Kedi Zhang, ECE)	CSE	\$60,000	\$60,000	2 (P. Geubelle and Jianming Jin)

14-17	Multidisciplinary design of microvascular composites based on a hierarchical approach	NSF	\$350,000	\$175,000	2 (P. Geubelle, PI)
15-16	An autonomous high-performance mesh pre-processor for computational analysis of complex heterogeneous materials (RA support for Q. Dang)	CSE	\$30,000	\$30,000	2 (P. Geubelle and S. Har-Peled)
15-19	Center of Excellence on Regenerating Composites	AFOSR	\$4,300,000	\$700,000	5 (S. White, PI)
15-17	Microvascular Composites for Novel Thermal Management Devices – STTR Phase 2 Grant with CUAerospace and Lockheed-Martin	AFOSR	\$258,803	\$120,000	2 (S. White, PI)
18-19	Morphogenic energy-efficient manufacturing	NSF CMMI LEAP-HI	\$638,978	\$140,000	4 (N. Sottos, PI)
18-21	Active dynamic granular metamaterial through controlled jamming-unjamming transitions	NSF CMMI	\$381,841	\$180,000	2 (P. Geubelle, PI)
19-23	Manufacturing USA: GOALI: Energy Efficient Processing of Thermosetting Polymers and Composites	NSF CMMI LEAP-HI	\$1,999,005	\$450,000	4 (N. Sottos, PI)
19-23	Center of Excellence Phase II: Self-healing to Morphogenic Manufacturing	AFOSR	\$3,000,000	\$500,000	5 (N. Sottos, PI)
21-26	Rapid Extrusion of Composite Mega-Structure for Space	DARPA	\$2,216,035	\$350,000	5 (S. Tawfick, PI)
22-26	EFRC for regenerative energy-efficient manufacturing of thermoset polymeric materials (RE-MAT)	DOE	\$10,650,000	\$554,075	12 (N. Sottos, PI)

For Instruction and workforce development

Years	Brief Title or Description	Source of Funds	Total funding	Funding Allocated to this Professor	# of PI's & Lead PI if not this Professor
98	Undergraduate Course Development Award: Development of AAE 270	U of I	\$8,000	\$8,000	1 (P. Geubelle, PI)
00-01	Innovative use of information technology for curriculum redesign	U of I	\$38,000	\$38,000	3 (P. Geubelle PI)
03	Illinois Space Grant	NASA	\$465,000	NA	(P. Geubelle, PI)
04-05	NASA Workforce Development Grant – Development of Aerospace UROP	NASA	\$100,000	NA	3 (P. Geubelle, PI)
04-05	2005 Summer UROP in Aerospace Engineering and Science	Boeing	\$25,000	NA	2 (P. Geubelle, PI)
04-06	2006 Summer UROP in Aerospace Engineering and Science	Boeing	\$25,000	NA	2 (P. Geubelle, PI)
05-06	NASA Space Grant Augmentation	NASA	\$162,875	NA	(P. Geubelle, PI)
07	Illinois Space Grant Consortium	NASA	\$590,000	NA	(P. Geubelle, PI)
07-09	REU Site for Undergraduate Research Opportunity in Aerospace Engineering and Science	NSF	\$261,000	NA	10 (P. Geubelle, PI)
08	Illinois Space Grant Consortium	NASA	\$590,000	NA	(P. Geubelle, PI)

09	Illinois Space Grant Consortium	NASA	\$785,000	NA	(P. Geubelle, PI)
10	Illinois Space Grant Consortium	NASA	\$845,000	NA	(P. Geubelle, PI)
11	Illinois Space Grant Consortium	NASA	\$815,000	NA	(P. Geubelle, PI)
12	Illinois Space Grant Consortium	NASA	\$575,000	NA	(P. Geubelle, PI)
13	Illinois Space Grant Consortium	NASA	\$575,000	NA	(P. Geubelle, PI)
14	Illinois Space Grant Consortium	NASA	\$575,000	NA	(P. Geubelle, PI)
15	Illinois Space Grant Consortium	NASA	\$575,000	NA	(P. Geubelle, PI)
15-16	Engaging Community College Students in STEM through High Altitude Ballooning: A Partnership between the Illinois Space Grant Consortium and the City Colleges of Chicago	NASA	\$500,000	NA	(P. Geubelle, PI)
15-19	Campus Initiative to Improve Instructional Laboratories – Construction of a three-story addition to Talbot Lab to create state-of-the-art composite manufacturing and nanosatellite technology labs	UIUC	\$8,600,000	NA	(P. Geubelle and J. Stubbins, co-PI)
16	Illinois Space Grant Consortium	NASA	\$760,000	NA	(P. Geubelle, PI)
17	Illinois Space Grant Consortium	NASA	\$760,000	NA	(P. Geubelle, PI)
18	Illinois Space Grant Consortium	NASA	\$760,000	NA	(P. Geubelle, PI)

SERVICE

Professional Societies

ASME AMD Technical Committee of Fracture and Failure

ASME AMD Technical Committee on Computations in Applied Mechanics
(Vice-chair: 2009-2011, Chair: 2011-2014)

ASME AMD Technical Committee on Dynamic Response of Materials
(Secretary 2005-2007, Chair: 2007-2009)

Technical Program Chair of ASME AMD-McMat 2011 Meeting in Chicago

(Co-)organizer of multiple mini-symposia at SES, USNCCM, ASME IMECE, Mach Conference, and AIAA meetings over the past 25 years

External reviewer for Aerospace Engineering program in MAE Department at U. Florida, March 2017.

ASME Materials Division Member of the Executive Committee, 2017-2021 (Chair: 2020-2021)

University (department, college and campus committees, administration, etc.)

ASCI/CSAR Science Steering Committee (1997 to 2008)

Department Admission Committee (Chair 1998-2003)

Department Undergraduate Curriculum Committee (1995-2000, 2002-2008)

Department Advisory Committee (1998-2000, 2003-2007)

Department Computer Resource Committee (1999-2000)

Department Qualifying Exam Committee (2000-2001, 2006-2018)

Department Ad Hoc Teaching Assistanship Committee (Chair, 2001-2002)

Department T.A. Committee (2002-2005)

Department Faculty Search Committee (2003 (Chair) and 2005)

Department Ad Hoc Committee on Qualifying Exam (2004)

Department Planning Committee (2003-2007)

Department Graduate Policy Committee (2006-2007, 2008-2011)

Department Associate Head for Undergraduate Program and Chief Undergraduate Advisor (2007-2008)

Department Associate Head for Graduate Programs (2008-2011)

Department Interim Head (2011-2012)

Department Head (2012-2018)

Department Committee on Named Appointments (2019-present)

College Engineering Workstation Steering Committee (1997 to 2002, Chair 9/2001 to 5/2002)
 College Strategic Planning Committee (2002-2003)
 College Search Committee in Nano-Technology (2004-2005)
 College Search Committee for CEE Department Head (2004)
 College Search Committee for AE Department Head (1998 and 2007)
 College Teaching Evaluation and Improvement Committee (2005-2008)
 College Steering Committee on Information Services (Chair) (2008-2010)
 College Engineering Council on Global Initiatives (2008-2009)
 College Committee on Advancement of the Recruitment and Retention Environment (2009-2011)
 College Steering Committee on IT@Engineering (2010-2011)
 College Committee on Faculty Teaching Development (Chair) (2011-2012)
 College Committee on Space Allocation (Chair) (2013)
 College Committee on ICR Allocation Policy (2013-2014)
 College Committee on Scholarship Campaign (2013-2014)
 College Governance Committee for Shared HR and Business (2011-2018)
 College Committee of Review of NPPE Department Head (Chair, 2016)
 College Search Committee on Grainger Engineering Breakthrough Initiative Professorships (2016-2018)
 College Search Committee for MatSE Department Head (Chair, 2018)
 College Governance Board for Shared Business, HR and IT Services (2015 – 2018)
 College Administrative Committee (2011-present)
 College Committee on New Budget Model (2019-2020 – Co-chair)
 College Search Committee for Assistant Dean for Marketing and Communication (2020 – Chair)
 College Committee on Professional Development of Faculty Members (2021)
 College Search Committee for Associate Dean for Graduate and Professional Programs (2021 – Chair)
 College Search Committee for HCESC Director (2022 – Chair)
 College Search Committee for the GCOE Director in Chicago (2022 – Chair)
 College Search Committee for the Associate Dean for Advancement (2022 – Chair)
 University Committee on Graduate Tuition Allocation and Expenditure Pilot Program (2013-2015)
 University Council of Unit Executive Officers (2014-2015)
 University Committee on Doctoral Candidacy (2014)
 University Committee on Beckman Institute Director Review (Chair, 2014)
 University Search Committee for Beckman Institute Director (Chair, 2016-2017)
 University Campus Budget Oversight Committee (2016-2022, Chair: 2016-2017, 2021-2022)
 University Budget Reform Implementation Committee (2017-present, Chair: 2022-present)
 University Committee for 5-year Review of Associate Chancellor and Vice Provost for Budget and Resource Planning (2021)
 University Search Committee for Senior Associate Chancellor for Human Resources (2021)

Federal and State

IMM Think Tank on the role of experimental mechanics in current U.S. research program, Houston, March 25-26, 1996
 Reviewer for NSF proposals (98, 06, 14, 15, 17, 19, 20)
 Director of the Illinois Space Grant Consortium (2003-2018)
 Chair of Great Midwest Association of Space Grant Consortia (2008-2011)
 National Space Grant Foundation: Board Member (2009-2018), Board President (2014-2018)
 Executive Board Member, Materials Division, American Society of Mechanical Engineers (2017-present, Chair: 2020-2021)