

**Michelle S. Hoo Fatt**  
**Department of Mechanical Engineering**  
**The University of Akron**  
**Akron, OH 44325-3903**  
**Phone: (330) 972-6308; Fax: (330) 972-6027**  
**E-mail: [hoofatt@uakron.edu](mailto:hoofatt@uakron.edu)**

**EXPERIENCE:**

- 9/10-Present    Professor of Mechanical Engineering, The University of Akron.  
Teach courses in structural mechanics. Conduct research in elastomer mechanics, blast and impact mechanics, and composite structures.
- 9/01-8/10       Associate Professor of Mechanical Engineering, The University of Akron.
- 9/95-8/01       Assistant Professor of Mechanical Engineering, The University of Akron.
- 9/93-8/95       Postdoctoral Associate/Lecturer, Ocean Engineering, MIT.  
Taught marine and ship structures. Conducted research on submarine survivability and composite structures.
- 9/92-8/93       Lecturer/Postdoctoral Fellow, Naval Arch & Offshore Engng, UC Berkeley.  
Taught ship structures. Developed rigid-plastic models for submarine survivability.
- 6/91-8/91       Graduate Student Analyst, Naval Surface Warfare Center, Silver Springs.  
Collaborated with Damage and Explosion Branch (R14) personnel on the development of a rigid-plastic model for submarine survivability.

**EDUCATION:**

- 1992    PhD in Structural Mechanics, Department of Ocean Engineering, MIT.  
Thesis Title: Deformation and Rupture of Cylindrical Shells under Dynamic Loading  
Thesis Advisor: Professor Tomasz Wierzbicki.
- 1990    MS in Ocean Engineering, MIT.
- 1987    BS in Mechanical Engineering, MIT.

**COURSES TAUGHT:**

**Undergraduate**

*4600:336 Analysis of Mechanical Components:* junior-level strength of materials; stress analysis; combined loading; theories of failure; fatigue.

4900:336 *Aerospace Structures*: junior-level course covering theory and methods for analysis and design of aerospace structures. Topics include torsion, shear flow, buckling, fracture and fatigue of beams and plates.

4600:431/531 *Fundamentals of Mechanical Vibrations*: senior/graduate-level; free and forced vibrations; damping; single and multi-degree(s)-of-freedom.

4600:461/471 *ME Senior Design*: group design projects; independent study.

## **Graduate**

4600:623 *Applied Stress I*: Airy/Prandtl stress functions and their applications; variational methods, including theorem of minimum potential energy and Hamilton's principle.

4600:625 *Analysis of Mechanical Component*: graduate-level strength of materials; advanced beam, plate and shell theories; energy methods; theories of failure.

4600:635 *Stress Waves in Solids*: propagation of stress waves through solids; transmission, reflection, absorption and diffraction phenomena; low and high velocity impact.

4600:661 *Failure Analysis of Mechanical Systems*: applications of failure theories, fracture mechanics and fatigue, including composite and welded structures.

## **RESEARCH INTERESTS:**

***Blast & Impact Mechanics of Composite Structures***: Low and high velocity impact modeling of composite and sandwich panels; air and underwater blast analysis of composite sandwich panels and shells.

***Elastomer Mechanics & Materials***: Material testing of elastomers and foams; development of constitutive models and fracture criteria; finite element analysis. Current interest in polymer foam constitutive modeling and failure under shock and impact loading.

## **PROFESSIONAL ACTIVITIES:**

1. Editorial Advisory Board, International Journal of Impact Engineering, 2008-Present.
2. Editorial Board, Thin-Walled Structures, 2010-Present.
3. Tire Society Secretary 2014-2016 and Member-at-Large, 2010-2014.
4. ASME Fellow, ASME Member since 1995.
5. Chair of technical sessions for various conferences, including ICSS-12 and ICCM20.
6. Reviewer for several journals, including Int J Impact Eng, Thin-Walled Struct, Engineering Struct, J Sand Struct Mat, Composite Structures.
7. NSF Proposal Panel Reviews, Division of Civil & Mechanical Systems: (i) December 9, 2011, (ii) September 6, 2005, (iii) July 20, 2000 and (iv) June 9-10, 1997.
8. Developed and taught special courses for industry:
  - Fracture Mechanics, 5-week on-site course for the Babcock & Wilcox Company, BWX Technologies, Barberton, Ohio; summer 2009 and fall 2003.

- Introduction to Elasticity, Plasticity and Fatigue, 15-week special on-site course in Advanced Mechanics for the Babcock & Wilcox Company, Ohio, spring 2001.

#### **PATENTS & AWARDS:**

1. 2013 Certificate of Excellence in Reviewing, Thin Walled Structures.
2. ASME Fellow, 2013.
3. Bekar I, Hoo Fatt MS and Padovan J. “Tensile Impact Apparatus,” US Patent No. 7,320,242, January 22, 2008.
4. 2003 Best Paper Award, Composite Structures: Hoo Fatt, M.S., Lin, C., Revilock, D.M. and Hopkins, D.A., “Ballistic Impact of GLARE™ Fiber-Metal Laminates,” *Composite Structures*, Vol. 61, No. 1-2, 2003, pp. 73–88.

#### **PUBLICATIONS:**

##### **Archival Journal Articles & Book Chapters**

1. Tong, X., Hoo Fatt, M.S. and Vedire, A.R., “A New Crushable Foam Model for Polymer-Foam Core Sandwich Structures,” *Int J International Journal of Crashworthiness*, 2021.  
<https://www.tandfonline.com/eprint/BXVI5YFJMPPQZT7VWC/full?target=10.1080/13588265.2021.1959170>
2. Hoo Fatt, M.S, Zhong, C., Gadepalli, P. C. and Tong X., “Crushable Multiaxial Behavior of Sandwich Foam Cores: Pressure Vessel Experiments,” *Journal of Sandwich Structures and Materials*, Vol. 23(6) 2028–2063, 2021.
3. Tong, X., Hoo Fatt, M.S., Zhong, C. and Alkhtany, M., “Predicting Anisotropic Crushable Polymer Foam Behavior in Sandwich Structures *Multiscale and Multidiscip. Model. Exp. and Des.* **3**, 245–264 (2020).
4. Hoo Fatt, M.S, Zhong C. and Tong X., “On Characterizing Multiaxial Polymer Foam Properties in Sandwich Structures,” in *Advances in Thick Section Composite and Sandwich Structures*, S.W. Lee (Ed.), Springer Nature Switzerland AG, pp. 387-405, 2020.
5. Li, B., Bahadursha, V.R.L.P. and Hoo Fatt, M.S., “Predicting failure in rubber membranes: An experimental-numerical approach,” *Engineering Failure Analysis*, Vol., pp. 404-424, 2018.
6. Hoo Fatt, M.S., Alkhtany, M. and Sirivolu, D., “Blast Mitigation Effects of Foam-Core, Composite Sandwich Structures.” in S. Gopalakrishnan and Y.D.S. Rajapakse (Ed.), *Blast Mitigation Strategies for Marine Composite and Sandwich Structures*, Springer Nature Singapore Pte Ltd, Singapore, 2018, 265-280.

7. Hoo Fatt, M.S. and Sirivolu, D., "Marine Composite Sandwich Plates under Air and Water Blasts," *Marine Structures*, Vol. 56, pp. 163-185, 2017.
8. Li, B. and Hoo Fatt, M.S., "Impact Damage and Residual Strength Predictions of 2D Woven SiC/SiC Composites," *Finite Elements in Analysis & Design*, Vol. 113, pp. 30-42, 2016.
9. Li, B. and Hoo Fatt, M.S., "Use of a Cohesive Zone Model to Predict Dynamic Tearing of Rubber," *Tire Science and Technology*, Vol. 43, No. 4, pp. 297-334, 2015. (*Won Best Student Paper Award at Tire Science and Technology Conference in 2014.*)
10. Sirivolu, D. and Hoo Fatt, M.S., "Dynamic Stability of Double-Curvature Composite Shells under External Blast," *International Journal of Nonlinear Mechanics*, Vol. 77, pp. 281-290, 2015.
11. Hoo Fatt, M.S. and Sirivolu, D., "Blast Response of Double Curvature, Composite Sandwich Shallow Shells," *Engineering Structures*, Vol. 100, pp. 696-706, 2015.
12. Hoo Fatt, M. S. and Chen, L. "A Viscoelastic Damage Model for Hysteresis in PVC H100 Foam under Cyclic Loading," *Journal of Cellular Plastics*, Vol. 51, No. 3, pp. 269-287, 2014.
13. Chen, L. and Hoo Fatt, M. S., "Transversely Isotropic Mechanical Properties of PVC Foam under Cyclic Loading," *Journal of Materials Science*, Vol. 48, No. 19, pp. 6786-6796, 2013.
14. Gao, Y. and Hoo Fatt, M.S., "Local Facesheet Pulse Buckling in a Curved, Composite Sandwich Panel," *Composite Structures*, Vol. 104, pp. 249-260, 2013.
15. Hoo Fatt, M.S., Gao, Y. and Sirivolu, D., "Foam-Core, Curved Composite Sandwich Panels under Blast," *Journal of Sandwich Structures and Materials*, Vol. 15, No. 3, pp. 261-291, 2013.
16. Hoo Fatt, M.S. and Chapagain P., "Pressure Pulse Response of Composite Sandwich Panels with Plastic Core Damping," *Journal of Sandwich Structures and Materials*, Vol. 14, No. 4, pp. 392-429, 2012.
17. Hoo Fatt M.S. and Surabhi H., "Blast Resistance and Energy Absorption of Foam-Core Cylindrical Sandwich Shells under External Blast," *Composite Structures*, Vol. 94, pp. 3174-3185, 2012.
18. Gao, Y. and Hoo Fatt, M.S., "Dynamic Pulse Buckling of Single Curvature Composite Shells under External Blast," *Thin-Walled Structures*, Vol. 52, pp. 149-157, 2012.
19. Hoo Fatt, M.S., Chen, L. and Al-Quraishi, A.A., "Fracture Parameters for Natural Rubber under Dynamic Loading," *Strain*, Vol. 47, pp. 505-518, 2011.
20. Liu, M. and Hoo Fatt, M.S., "A Constitutive Equation for Filled Rubber under Cyclic Loading," *International Journal of Non-Linear Mechanics*, Vol. 46, pp. 446-456, 2011.

21. Hoo Fatt, M.S and Pothula, S.G., "Dynamic Pulse Buckling of Composite Shells Subjected to External Blast," *Composites Structures*, Vol. 92, No. 7, pp. 1716–1727, 2010.
22. Hoo Fatt, M.S. and Sirivolu, D., "A Wave Propagation Model for the High Velocity Impact Response of a Composite Sandwich Panel," *International Journal of Impact Engineering*, Vol. 37, No. 2, pp. 117-130, 2010.
23. Liu, M. and Hoo Fatt, M.S., "A Three-Dimensional Constitutive Model for the Dynamic Response of Rubber," *Tire Science and Technology*, Vol. 37, No. 4, pp. 226-253, 2009.
24. Hoo Fatt, M.S., Palla, L. and Sirivolu, D., "Modeling Blast and High-Velocity Impact of Composite Sandwich Panels," in *Major Accomplishments in Composite Materials and Sandwich Structures – An Anthology of ONR Sponsored Research*, I.M. Daniel, E.E. Gdoutos and Y.D.S. Rajapakse (Eds.), Springer, New York, 2009, 661-690.
25. Hoo Fatt, M.S. and Palla, L., "Analytical Modeling of Composite Sandwich Panels under Blast Loads," *Journal of Sandwich Structures and Materials*, Vol. 11, No. 4, pp. 357-380, 2009.
26. Hoo Fatt, M.S. and Sirivolu, D., "Impact Perforation of Sandwich Panels with Coremat<sup>®</sup>," *International Journal of Crashworthiness*, Vol. 14, No. 1, pp. 37-47, 2009.
27. Hoo Fatt, M.S. and Ouyang, X., "Three-Dimensional Constitutive Equations for Styrene Butadiene Rubber at High Strain Rates," *Mechanics of Materials*, Vol. 40, No. 1-2, pp. 1-16., 2008.
28. Al-Quraishi, A.A., Hoo Fatt, M.S., "Dynamic Fracture of Natural Rubber," *Tire Science and Technology*, Vol. 35, No. 4, pp. 252-275, 2007.
29. Hoo Fatt, M.S. and Ouyang, X., "Integral-Based Constitutive Equation for Rubber at High Strain Rates," *Int J Solids Struct*, Vol. 44, No. 20, pp. 6491-6506, 2007.
30. Lin, C. and Hoo Fatt, M.S., "Perforation of Composite Plates and Sandwich Panels under Quasi-Static Punch and Projectile Loading," *Journal of Composite Materials*, Vol. 40, No. 20, pp. 1801-1840, 2006.
31. Karim, M. and Hoo Fatt, M.S., "Rate-Dependent Constitutive Equations for Carbon Fiber-Reinforced Epoxy," *Polymer Composites*, Vol. 27, No. 5, pp. 513-528, 2006.
32. Hussain, S.A. and Hoo Fatt M.S., "The Behavior of Carbon Black-Filled Natural Rubber under High Strain Rates," *Tire Science and Technology*, Vol. 34, No. 2, pp. 119-134, 2006. (*Won Best Student Paper Award at Tire Science and Technology Conference in 2005.*)
33. Xue, J. and Hoo Fatt, M.S., "Symmetric and Anti-Symmetric Buckle Propagation Modes in Subsea Corroded Pipelines," *Marine Structures*, Vol. 18, No. 1, pp. 43-61, 2005.
34. Karim, M. and Hoo Fatt, M.S., "Impact of the Boeing 767 Aircraft into the World Trade Center," *Journal of Engineering Mechanics*, Vol. 131, No. 10, pp. 1066-1072, 2005.

35. Lin, C. and Hoo Fatt, M.S., "Perforation of Sandwich Panels with Honeycomb Cores by Hemispherical-Nose Projectiles," *Journal of Sandwich Structures and Materials*, Vol. 7, No. 2, pp. 133-172, 2005.
36. Hoo Fatt, M.S. and Bekar, I., "High-Speed Testing and Material Modeling of Unfilled Styrene Butadiene Vulcanizates at Impact Rates," *Journal of Materials Science*, Vol. 39, No. 23, pp. 6885-6899, 2004.
37. Hoo Fatt, M.S. and Lin, C., "Perforation of Clamped, Woven E-glass/Polyester Panels," *Composites Part B*, Vol. 35, No. 5, pp. 359-378, 2004.
38. Hoo Fatt, M.S., Lin, C., Revilock, D.M. and Hopkins, D.A., "Ballistic Impact of GLARE™ Fiber-Metal Laminates," *Composite Structures*, Vol. 61, No. 1-2, pp. 73-88, 2003. (*Won Best Paper Award from Composite Structures in 2003*)
39. Bekar, I., Hoo Fatt, M.S. and Padovan, J., "Deformation and Fracture of Rubber under Tensile Impact Loading," *Tire Science and Technology*, Vol. 30, No. 1, pp. 45-58, 2002.
40. Xue J., Hoo Fatt, M.S. "Buckling of a Non-Uniform, Long Cylindrical Shell Subjected to External Hydrostatic Pressure, *Engineering Structures*, Vol. 24, No. 8, pp. 1027-1034, 2002.
41. Hoo Fatt, M.S. and Park, K.S., "Modeling Low-Velocity Impact Damage of Composite Sandwich Panels," *Journal of Sandwich Structures and Materials*, Vol. 3, No. 2, pp. 130-168, 2001.
42. Hoo Fatt, M.S. and Park, K.S., "Dynamic Models for Low-Velocity Impact Damage of Composite Sandwich Panels - Part A: Deformation," *Composite Structures*, Vol. 52, No. 3-4, pp. 335-351, 2001.
43. Hoo Fatt, M.S. and Park, K.S., "Dynamic Models for Low-Velocity Impact Damage of Composite Sandwich Panels - Part B: Damage Initiation," *Composite Structures*, Vol. 52, No. 3-4, pp. 353-364, 2001.
44. Xue, J. and Hoo Fatt, M.S., "Buckle Propagation in Pipelines with Non-Uniform Thickness," *Ocean Engineering*, Vol. 28, No. 10, pp. 1383-1392, 2001.
45. Hoo Fatt, M.S. and Xue, J., "Propagating Buckles in Corroded Pipelines," *Marine Structures*, Vol. 14, No. 6, pp. 571-592, 2001.
46. Xue, J. and Hoo Fatt, M.S., "Post-Buckling of Non-Uniform Ring Subjected to Uniform External Pressure," *Thin Walled Structures*, Vol. 39, No. 4, pp. 328-351, 2001.
47. Hoo Fatt, M.S. and Park, K.S., "Perforation of Honeycomb Sandwich Plates by Projectiles," *Composites Part A: Applied Science & Manufacturing*, Vol. 31, pp. 889-899, 2000.
48. Hoo Fatt, M.S., Liu, Y. and Wang, Z.B., "Plastic Deformations of Impulsively Loaded, Rigid-Plastic Beams," *Journal of Engineering Mechanics*, pp. 157-165, February 2000.

49. Hoo Fatt, M.S., "Elastic-Plastic Collapse of Non-Uniform Cylindrical Shells Subjected to Uniform External Pressure," *Thin Walled Structures*, Vol. 35, No. 2, pp. 117-137, 1999.
50. Turk, M.H. and Hoo Fatt, M.S., "Localized Damage Response of Composite Sandwich Plates," *Composite Part B: Engineering Journal*, Vol. 30, No. 2, pp. 157-165, 1999.
51. Hoo Fatt, M.S., "Buckle Propagation and Fracture in Pipelines," *International Journal of Offshore and Polar Engineering*, Vol. 9, No. 1, pp. 30-38, 1999.
52. Hoo Fatt, M.S. and Wang, Z.B., "Fracture of Ductile Pipelines Subjected to Bending and Reverse Bending Loads," *Journal of Offshore Mechanics and Arctic Engineering*, Vol. 120, pp. 184-190, 1998.
53. Hoo Fatt, M.S., "Rigid-Plastic Deformation of a Ring-Stiffened Shell under Blast Loading," *Journal of Pressure Vessel Technology*, November, Vol. 119, pp. 467-474, 1997.
54. Mihuailescu-Suliciu, M., Suliciu, I., Wierzbicki, T., and Hoo Fatt, M.S., "Transient Response of An Impulsively Loaded Plastic String on a Plastic Foundation," *Quarterly of Applied Mathematics*, Vol. LIV, No. 2, pp. 327-343, 1996.
55. Hoo Fatt, M.S., "Fully-Plastic Crack Propagation in Stiffened Plates," *International Journal of Solid & Structures*, Vol. 33, No. 5, pp. 629-645, 1996.
56. Hoo Fatt, M.S., Moussouros, M., Wierzbicki, T. and Koenig, J., "Rigid-Plastic Approximations for Predicting Plastic Deformation of Cylindrical Shells Subject to Dynamic Loading," *Shock & Vibrations Journal*, Vol. 3, No. 3, pp. 169-181, 1996.
57. Moussouros, M. and Hoo Fatt, M.S., "Effect of Shear on Plastic Denting of Cylinders," *International Journal of Mechanical Sciences*, Vol. 37, No. 4, pp. 355-371, 1995.
58. Hoo Fatt, M.S., "Shock-Wave Damage of Ring-stiffened Cylindrical Shells," *Journal of Ship Research*, Vol. 38, No. 3, pp. 245-252, 1994.
59. Hoo Fatt, M.S., "Plastic Deformation and Rupture of Ring-Stiffened Cylinders under Localized Pressure Pulse Loading," *Shock and Vibration Journal*, Vol. 1, No. 3, pp. 289-301, 1994.
60. Wierzbicki, T. and Hoo Fatt, M.S., "Damage Assessment of Cylinders due to Impact and Explosive Loading," *International Journal of Impact Engineering*, Vol. 13, No. 2, pp. 215-241, 1993.
61. Hoo Fatt, M.S. and Wierzbicki, T., "Impact Damage of Long Plastic Cylinders," *International Journal of Offshore and Polar Engineering*, Vol. 2, No. 2, pp. 147-156, 1992.
62. Wierzbicki, T. and Hoo Fatt, M.S., "Impact Response of a String-on-Foundation," *International Journal of Impact Engineering*, Vol. 12, No. 1, pp. 21-36, 1992.

63. Hoo Fatt, M.S. and Wierzbicki, T., "Damage of Plastic Cylinders Under Localized Pressure Loading," *International Journal of Mechanical Sciences*, Vol. 33, No. 12, pp. 999-1016, 1991.
64. Hoo Fatt, M.S. and Wierzbicki, T., "Denting Analysis of Ring-Stiffened Cylindrical Shells," *International Journal of Offshore and Polar Engineering*, Vol. 1, No. 2, pp. 137-145, 1991.
65. Karr, D.G., Law, F.P., Hoo Fatt, M.S., and Cox, G.F.N., "Asymptotic and Quadratic Failure Criteria for Anisotropic Materials," *International Journal of Plasticity*, Vol. 5, pp. 303-336, 1989.
66. Karr, D.G., Watson, J.C. and Hoo Fatt, M.S., "Three-Dimensional Analysis of Ice Sheet Indentation: Limit Analysis Solutions," *Journal of Offshore Mechanics and Arctic Engineering*, Vol. III, pp. 63-69, 1989.

### Conference Papers

1. Hoo Fatt, M.S., "A New Material Constitutive Model for Crushable PVC Foams," in the Proceedings of the 2019 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, Arlington, VA, December 4-6, 2019.
2. Hoo Fatt, M.S., Zhong, C., Tong, X. and Gadepalli, P. C., "A Transversely Isotropic Material Model for Foam Cores in Marine Composite Sandwich Panels under Blasts," in the Proceedings of the 12<sup>th</sup> International Conference on Sandwich Structures, Lausanne, Switzerland, 19-22 August, 2018.
3. Hoo Fatt, M.S., "Development of a Material Model for Crushable PVC Foams used in Marine Sandwich Structures Subjected to Underwater Blasts," in the Proceedings of the 2017 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, Arlington, VA, November 29 – December 1, 2017.
4. Hoo Fatt MS, Jacob AJ, Tong X and MacHado-Reyes A., "Crushing Behavior and Energy Absorption of PVC Foam: An Anisotropic Visco-Elastic-Plastic-Damage Model," in the Proceedings of the 21<sup>st</sup> International Conference on Composite Materials, Xi'an, China, 20-25 August 2017.
5. Iwano, C, Sullivan, B and Hoo Fatt, MS, "Development and Evaluation of Foreign Object Damage Resistant Ceramic Matrix Composites," in the Proceedings of ASME Turbo Expo 2017, Charlotte, NC, June 26-30, 2017.
6. Hoo Fatt, M.S., "Material Modeling of PVC Foam under Combined Transverse Compression and Shear," in the Proceedings of the 2016 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, Arlington, VA, November 30 – December 2, 2016.

7. Hoo Fatt, M.S., Alkhtany, M. and Sirivolu, D., "Underwater Blast Resistance and Energy Absorption of PVC Foams in Sandwich Panel Constructions," in the Proceedings of the 11<sup>th</sup> International Conference on Sandwich Structures, Ft. Lauderdale, FL, March 20-22, 2016.
8. Hoo Fatt, M.S., "Water Blast Response of Foam-Core Composite Sandwich Panels," in the Proceedings of the 2015 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, Arlington, VA, December 2-4, 2015.
9. Hoo Fatt, M.S. and Sirivolu, D., "Blast Mitigation Effects of Foam-Core, Composite Sandwich Structures," in Indo-USA Workshop on Recent Advances in Blast Mitigation Strategies in Civil and Marine Structures, Bangalore, India, August 16-19, 2015.
10. Hoo Fatt, M.S. and Sirivolu, D., "A Fluid-Solid Model for Composite Sandwich Plates under Water Blast," in the Proceedings of the 20<sup>th</sup> International Conference on Composite Materials, Copenhagen, Denmark, July 19-24, 2015.
11. Hoo Fatt, M.S., "Blast Response of Composite Shells and Sandwich Panels in Air and Fluid," in the Proceedings of the 2014 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, Arlington, VA, October 29-31, 2014.
12. Li, B. and Hoo Fatt, M.S., "Use of a Cohesive Zone Model to Predict Dynamic Tearing of Rubber," presented at the 33<sup>rd</sup> Annual Meeting and Conference on Tire Science and Technology, Akron, Ohio, September 8-10, 2014. (*Won Best Student Paper Award at Conference.*)
13. Hoo Fatt M.S., Sirivolu D. and Gao Y. "Dynamic Pulse Buckling of Composite Shell Structures Subjected to External Blast," in the Proceedings of the 1st International Conference on Mechanics of Composites, Stony Brook University, NY, 8-12 June 2014.
14. Hoo Fatt, M.S., "Failure and Energy Dissipation of Foam-Core Composite Sandwich Shells under Blast," in the Proceedings of the 2013 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, Arlington, VA, December 3-5, 2013.
15. Hoo Fatt, M.S. and Sirivolu, D., "Foam Crushing in Double-Curvature, Composite Sandwich Panels Subjected to Blast," in the Proceedings of the 19<sup>th</sup> International Conference on Composite Materials, Montreal, Canada, July 28-August 2, 2013.
16. Hoo Fatt, M.S., "On the Behavior of Foam-Core, Curved Composite Sandwich Panels Subjected to Blast," in the Proceedings of the 2012 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, Sterling, VA, November 29-30, 2012.
17. Hoo Fatt, M.S., Gao Y. and Sirivolu, D., "Foam-Core Composite Sandwich Shells under Blast," in the Proceedings of 10<sup>th</sup> International Conference on Sandwich Structures, Nantes, France, August 27-29, 2012.
18. Hoo Fatt, M.S. and Chapagain, P., "Dynamic Response of Foam-Core Composite Panels under Pressure Pulse Loading," in the Proceedings of 26<sup>th</sup> ASC Annual Technical Conference, Montreal, Canada, September 26-28, 2011.

19. Hoo Fatt, M.S., "Blast Resistance and Energy Absorption in Foam-Core Composite Sandwich Panels," in the Proceedings of the 2011 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, University of Maryland University College, Adelphi, MD, September 12-14, 2011.
20. Chen, L. and Hoo Fatt, M.S., "Developing Constitutive Equations for Hysteresis in Polymer Foams" in ASME Applied Mechanics and Materials Conference McMat 2011, Chicago IL, May 30-June 1, 2011.
21. Hoo Fatt, M.S., Surabhi, H. and Gao, Y., "Blast Response of Sandwich Shells with Crushable Foam Cores," in the Proceedings of IMPLAST 2010, Providence, RI, October 12-14, 2010.
22. Hoo Fatt, M.S., "Foam-Core Composite Sandwich Shells Subjected to External Blasts," in the Proceedings of the 2010 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, University of Maryland University College, Adelphi, MD, September 27-29, 2010.
23. Hoo Fatt, M.S., "Dynamic Stability, Vibrations and Failure of Composite Shells Under External Blast," in the Proceedings of the 2009 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, University of Maryland University College, Adelphi, MD, September 21-23, 2009.
24. Hoo Fatt M.S, and Pothula, S.G., "Implosion of Composite Shells under Blast" in the Proceedings of the 17th International Conference on Composite Materials, Edinburgh, Scotland, July 27-31, 2009.
25. Hoo Fatt, M.S., "Analytical Models for Blast and High Velocity Impact of Composite Sandwich Panels," in the Proceedings of the 2008 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, University of Maryland University College, Adelphi, MD, September 17-19, 2008.
26. Liu, M. and Hoo Fatt, M.S., "A Three-Dimensional Model for the Dynamic Response of Rubber," presented at the 26<sup>th</sup> Annual Meeting and Conference on Tire Science and Technology, Akron, Ohio, September 15-16, 2008.
27. Hoo Fatt M.S, and Sirivolu, D., "High Velocity Impact of a Composite Sandwich Panel" presented at the 10<sup>th</sup> Int. Conference on Structures Under Shock and Impact, the Algarve, Portugal, May 14-17, 2008, and in Structures under Shock and Impact X (edited by N. Jones and C.A. Brebbia), WIT Press, Southampton, UK, 2008, pp. 3-13.
28. Hoo Fatt M.S, and Palla, L., "Blast Response of Composite Sandwich Panels" in the Proceedings of the 8th Int. Conference on Sandwich Structures, Porto, Portugal, May 6-8, 2008.
29. Hoo Fatt, M.S., "Impact and Blast Modeling of Composite Sandwich Panels," in the Proceedings of the 2007 ONR Solid Mechanics Program Review, Marine Composites and Sandwich Structures, University of Maryland University College, Adelphi, MD, September 10-12, 2007, pp. 201-209.

30. Hoo Fatt, M.S., Al-Quraishi, A.A., "High Strain Rate Constitutive Modeling for Natural Rubber," presented at the 5<sup>th</sup> European Conference on Constitutive Models for Rubber, Paris, France, September 4-7, 2007, and in *Constitutive Models for Rubber V*, edited by A. Boukamel, L. Laiarinandrasana, S. Meo, E. Verron, Taylor and Francis, London, 2007, pp. 53-60.
31. Hoo Fatt, M.S. and Sirivolu, D., "Impact Perforation of Composite Sandwich Panels" in the Proceedings of the 16<sup>th</sup> International Conference on Composite Materials, Kyoto, Japan, July 8-13, 2007.
32. Al-Quraishi, A.A. and Hoo Fatt, M.S., "Dynamic Fracture of Natural Rubber," presented at the 25<sup>th</sup> annual meeting and conference on Tire Science and Technology, Akron, Ohio, September 11-12, 2006.
33. Hoo Fatt, M.S. and Ouyang, X., "The Behavior of Elastomers at High Strain Rates," presented at 9<sup>th</sup> International Conference on Structures Under Shock and Impact, Southampton, UK, July 3-5, 2006, and in *Structures under Shock and Impact IX*, edited by N. Jones and C. A. Brebbia, WIT Press, Southampton, 2006, pp. 97-106.
34. Hussain, S.A. and Hoo Fatt M.S., "The Behavior of Carbon Black-Filled Natural Rubber under High Strain Rates," presented at the 24<sup>th</sup> Tire Science and Technology Conference, Akron, OH, September 20-21, 2005. (*Won Best Student Paper Award at Conference.*)
35. Lin, C. and Hoo Fatt, M.S., "A Generalized Solution Methodology for Projectile Impact of Composite Plates and Sandwich Panels," in the Proceedings of the 20<sup>th</sup> Technical Conference of the American Society for Composite Materials, edited by F. K. Ko, G. R. Palmese, Y. Gogotski, A. S. D. Wang, Philadelphia, PA, September 7-9, 2005.
36. Hoo Fatt, M.S. and Karim, M., "Constitutive Modeling of Carbon-Fiber Reinforced Polymers under High Strain Rates," in the Proceedings of the 3<sup>rd</sup> International Conference on Structural Stability and Dynamics, Kissimmee, Florida, June 19-22, 2005.
37. Hoo Fatt, M.S., Ouyang, X., and Dinan, R.J., "Blast Response of Walls Retrofitted with Elastomer Coating," presented at 8<sup>th</sup> International Conference on Structures Under Shock and Impact, Crete, Greece, March 2004, and in *Structures under Shock and Impact VIII*, edited by N. Jones and C. A. Brebbia, WIT Press, Southampton, 2004, pp. 129-138.
38. Hoo Fatt, M.S., Bekar, I., and Padovan J., "Tensile Impact of SBR – Rate-Dependent Deformation and Fracture Characteristics," presented at EUROMECH Colloquium on Constitutive Equations for Polymer Microcomposites: on the Border of Mechanics and Chemistry, Vienna, Austria, July 15-17, 2002.
39. Hoo Fatt, M.S. and Lin, C., "Ballistic Impact of Fiber-Metal Laminates," presented at the 14th U.S. National Congress of Theoretical and Applied Mechanics, Blacksburg, VA, June 23-28, 2002.
40. Bekar, I., Hoo Fatt, M.S. and Padovan, J., "Deformation and Fracture of Rubber under Tensile Impact Loading," presented at the 20th Annual Meeting and Conference on Tire Science and Technology, Akron OH, April 24-25, 2001.

41. Hoo Fatt, M.S. and Park, K.S., "Ballistic Impact of Fiber-Reinforced Laminates," presented at the 8th International Conference on Composites Engineering, Tenerife, Canary Islands, August 5-11, 2001.
42. Hoo Fatt, M.S. and Park, K.S., "Static Indentation and Low-Velocity Impact Damage of Composite Sandwich Panels," presented at the Symposium on Design and Manufacturing of Composite Structures, IMECE, Orlando, FL, November 5-10, 2000.
43. Hoo Fatt, M.S. and Park, K.S., "Low-Velocity Impact Damage of Composite Sandwich Panels," in the Proceedings of the 7th International Conference on Composites Engineering, Denver, CO, July 2-8, 2000, pp. 337-338.
44. Hoo Fatt, M.S., Liu, Y.L. and Xue, J., "Steady-State Buckle Propagation in Corroded Pipelines," in the Proceedings of the 10th International Symposium of Offshore & Polar Engineering, Seattle, WA, May 28- June 2, 2000, Vol. II, pp. 197-204.
45. Hoo Fatt, M.S. and Park, K.S., "Perforation of Honeycomb Sandwich Plates by Projectiles at Normal Incidence," in the Proceedings of the 1999 ASME Mechanics & Materials Conference, Blacksburg, VA, June 27-30, 1999, pp 107-108.
46. Hoo Fatt, M.S., "Plastic Failure of Pipelines," in the Proceedings of the 8th International Offshore & Polar Engineering Conference, Montreal, Canada, May 24-29, 1998, Vol. II, pp. 119-126.
47. Turk, M.H. and Hoo Fatt, M.S., "Localized Damage Response of Composite Sandwich Plates," in the Proceedings of the 5th International Conference on Composites Engineering, Las Vegas, Nevada, July 5-11, 1998, pp. 899-900.
48. Hoo Fatt, M.S., Moussouros, M., Wierzbicki, T. and Koenig, J., "Rigid-Plastic Approximations for Predicting Plastic Deformation of Cylindrical Shells Subject to Dynamic Loading," in the Proceedings of the 66th Shock & Vibrations Symposium, Biloxi, Mississippi, October 30-November 3, 1995, pp. 165-185.
49. Wierzbicki, T., de Lacruz Alvarez, A. and Hoo Fatt, M.S., "Impact Energy Absorption of Sandwich Plates with Crushable Core," in the Proceedings of the Joint ASME Applied Mechanics and Materials Summer Meeting, Los Angeles, CA, June 28-30, 1995, AMD-Vol. 205, pp. 391-411.
50. Hoo Fatt, M.S. and Fux, E., "Fracture of Stiffened Structures Subject to High-Intensity Pressure Loads," in the Proceedings of the Symposium on Structural Dynamics Produced by High Energy Excitations at the ASME Joint Pressure Vessel and Piping Conference, Honolulu, Hawaii, July 23-27, 1995, pp. 1-8.
51. Hoo Fatt, M.S. and Louie, T., "Detachment of Stiffeners from Ring-Stiffened Shells Subject to Pressure-Pulse Loading," in the Proceedings of 65th Shock & Vibrations Symposium, San Diego, October 31- November 3, 1994, pp. 3-18.
52. Hoo Fatt, M.S., "Plastic Tripping and Fracture of Ring-Stiffened Cylindrical Shells Subject to Explosive Loading," in the Proceedings of the 1994 ASME Pressure Vessel and Piping Conference, Minneapolis, June 19-23, 1994, PVP-Vol. 272, pp. 153-165.

53. Hoo Fatt, M.S. and Liao, S.-W., "Plastic Failure of Cylindrical Shells Subject to Air-Blast Loading," in the Proceedings of the 64th Shock & Vibration Symposium, Fort Walton Beach and Eglin Air Force Base, October 25-28, 1993.
54. Hoo Fatt, M.S., "Plastic Deformation and Rupture of Ring-Stiffened Cylinders Under Localized Pressure Pulse Loading," in the Proceedings of the 63rd Shock and Vibrations Symposium, Las Cruces, October 27-29, 1992, Vol. 1, pp. 474-494.
55. Hoo Fatt, M.S. and Wierzbicki, T., "Damage of Ring-Stiffened Cylinders Under Dynamic Pressure Loading," in the Proceedings of the Second International Offshore and Polar Engineering Conference, San Francisco, June 14-19, 1992, Vol. IV, pp. 587-595.
56. Hoo Fatt, M.S. and Wierzbicki, T., "Deformation and Perforation of a Circular Membrane Due to Rigid Projectile Impact," in the Proceeding of the ASME Winter Annual Meeting, Atlanta, December 1-6, 1991, PVP-Vol. 225, pp. 73-83.
57. Hoo Fatt, M.S. and Wierzbicki, T., "Impact Damage of Long Plastic Cylinders," in the Proceeding of the First International Conference of Offshore and Polar Engineering, Edinburgh, Scotland, 11-15 August, 1991, Vol. IV, pp. 172-182.
58. Hoo Fatt, M.S. and Wierzbicki, T., "Denting Analysis of Ring-Stiffened Cylindrical Shells," in the Proceedings of the First European Offshore Mechanics Symposium, Trondheim, Norway, 20-22 August, 1990, pp. 153-177.

### Technical Reports

1. Hoo Fatt, M.S. "Composite Sandwich Structures for Shock Mitigation and Energy Absorption,," DTIC Report, September 8, 2016, <http://www.dtic.mil/dtic/tr/fulltext/u2/a526995.pdf>
2. Hoo Fatt, M.S. and Li, B. "Using FEA to Simulate the Dynamic Tearing of Rubber," CenTire Final Report, August, 2014.
3. Hoo Fatt, M.S. and Bahadursha, P. "Wear Analysis of Johnsonite Stair Nosing," Johnsonite Technical Report, December 20, 2013.
4. Hoo Fatt, M.S. "Impact Damage of SiC/SiC Beams: Development of a User-Defined Material Subroutine for Finite Element Analysis," Material Research & Design Technical Report (ITAR-Controlled), May 2013.
5. Hoo Fatt, M.S. "Shock and Impact Response of Naval Composite Structures," DTIC Report, September 8, 2010, <http://www.dtic.mil/dtic/tr/fulltext/u2/a526995.pdf>
6. Hoo Fatt, M.S. and Liu M., "Hyper-Viscoelastic Constitutive Equation," Bridgestone/Firestone Technical Report, March 2006.

7. Hoo Fatt, M.S. and Bekar I., "Analysis of High Pressure Rubber Seals," Schlumberger Report, January 2003.
8. Hoo Fatt, M.S. and Bekar I., "High Strain Rate Properties of Polyurethane Elastomers in Tension," Tyndall Report, October 2003.
9. Hoo Fatt M.S., Park, K.S. and Lin, C., "Hailstone Impact Damage of Composite Sandwich Panels - A Comparison of Analytical Solutions for Low-Velocity Impact Damage with Test Results from Goodrich Aerospace," OAI CCRP Report No. 1, The University of Akron, March 2001.
10. Hoo Fatt M.S., Park, K.S. and Lin, C., "Ballistic Impact of Woven E-Glass/Polyester Laminates," OAI CCRP Report No. 2, The University of Akron, July 2001.
11. Hoo Fatt M.S. and Xue, J. , "Estimating the Ballistic Limit of A356 Cast Aluminum Lattice Block," OAI CCRP Report No. 3, The University of Akron, July 2001.
12. Hoo Fatt, M.S. and Lin, C., "Ballistic Impact of GLARE," OAI CCRP Report No. 4, The University of Akron, December 2002.
13. Hoo Fatt, M.S. and Lin, C., "Perforation of Clamped, Woven E-Glass/Polyester Panels," OAI CCRP Report No. 5, December 2002.
14. Hoo Fatt, M.S. and Park, K.S., "Low-Velocity Impact of a Jet Engine Acoustic Liner," Technical Report for the Ohio Aerospace Institute, The university of Akron, August, 2000.
15. Hoo Fatt, M.S. and Park, K.S., "On Modeling the Impact Response of Jet Engine Nacelles," Technical Report for the Ohio Aerospace Institute, The university of Akron, July, 2000.
16. Hoo Fatt, M.S. and Park, K.S., "Analytical Modeling for Static Indentation and Low-Velocity Impact Damage of Composite Sandwich Panels," Technical Report for the Ohio Aerospace Institute, The University of Akron, March, 2000.
17. Hoo Fatt, M.S. and McClintock, F.A., "Loadings, Fundamentals of Fracture, and the Structural and Fracture Responses of the Shell," Technical Report for the Naval Surface Warfare Center (White Oak), MIT, April, 1995.
18. Hoo Fatt, M.S. and Fux, E., "Detachment of Ring-Stiffeners From Cylindrical Shells Subject to Pressure Loading: Part II (Dynamic Effects)," Technical Report for the Naval Surface Warfare Center (White Oak), MIT, December, 1994.
19. Hoo Fatt, M.S., "Detachment of Ring-Stiffeners From Cylindrical Shells Subject to Pressure Loading: Part I," Technical Report for the Naval Surface Warfare Center (White Oak), MIT, May, 1994.

20. Hoo Fatt, M.S., "Literature Review on the Damage of Cylindrical Shells Subject to Underwater Explosive (UNDEX) Loading," Technical Report for the Naval Surface Warfare Center (White Oak), University of California, Berkeley, June, 1993.
21. Moussouros, M. and Hoo Fatt, M.S., "Static Rigid-plastic Analysis of Unstiffened Cylindrical Shells. Part 4: Model No. 4 for the Cylinder," NSWC Technical Report No. NSWCDD/TR-92/188, Naval Surface Warfare Center, White Oak,