

Dr. Gaurav Nilakantan

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Executive Summary

Dr. Nilakantan is a Research Scientist at Teledyne Scientific & Imaging (part of Teledyne Technologies Inc) in Thousand Oaks, CA. He previously worked as research staff in the composites centers at the University of Southern California and the University of Delaware.

Dr. Nilakantan's research involves high performance materials, particularly ceramic and polymer matrix textile composites used for aerospace and defense. He utilizes his diverse expertise in manufacturing, experimental characterization, and numerical simulation to explore the fundamental behavior of composite structures subjected to various/extreme environments. In the military aerospace sector, Dr. Nilakantan has worked on designing, manufacturing, testing, and modeling an integrally woven 3D C/SiC ceramic matrix composite material for a hypersonic vehicle aeroshell, part of a DARPA-DSO program. In the commercial aerospace sector, Dr. Nilakantan has worked on out-of-autoclave vacuum-bag-only (OOA-VBO) processing of thermoset prepregs. He is a pioneer in the field of reusing and upcycling thermoset prepreg scrap for commercial applications. In the defense armor sector, Dr. Nilakantan has worked on the experimental property and performance characterization of textiles and textile composites across the length scales, multiscale and probabilistic computational modeling of ballistic impact behavior, occupant safety and survivability during crash/mine blast, and metallic and composite energy absorbing structures. His seminal work in armor includes being the first in the world to develop fully predictive and validated computational techniques to predict the probabilistic penetration response (V0-V100 curve) of woven Kevlar fabrics used in soft armor applications. Other notable technologies developed by Dr. Nilakantan include full-scale virtual testing of composites using a fully reformulated Binary Model, realistic virtual microstructure generation techniques for composites, and process-property simulation methods for compression-molded discontinuous fiber composites. Dr. Nilakantan's research work has received support from PEO Soldier (PM-SPIE), Army Research Laboratory (ARL), DARPA Defense Sciences Office (DSO), Air Force Research Laboratory (AFRL), and the National Science Foundation (NSF). He is an expert in using LS-DYNA to simulate large scale dynamic physical phenomena.

Dr. Nilakantan holds a US patent for an anti-whiplash seat mechanism. He is listed in Who's Who in America and American Men and Women of Science. He was awarded the American Society for Composites PhD Research Award and the R.L. McCullough Scholars Award during his graduate studies for his contributions to composites-related research. He won the Allan P. Colburn Prize for Best Doctoral Dissertation in Engineering and Mathematical Sciences at the University of Delaware.

Dr. Nilakantan has actively participated in several professional organizations such as ASME, ASC, and SAMPE, and has served on numerous occasions as International Scientific Committee Member, Symposium Organizer, and Session Chair at various international conferences. He is the Group Owner of the 'A2E – Armor, Ballistics, Composites, and Defense Experts' group on LinkedIn (>3000 members). He previously served as Editor-in-Chief of the Journal of Multifunctional Composites and is a reviewer for several journals. He has over 40 technical publications that include 21 refereed journal papers (with 15 as first-author, in the leading composites- and impact- related journals), 30 conference proceedings (with 24 as presenter), 1 patent, and 1 user manual. He has a h-index of 16 and i10-index of 23 (Google Scholar), and a h-index of 13 (SciVerse Scopus). Dr. Nilakantan's published research work has been recognized in both the SciVerse ScienceDirect Top 25 Hottest Articles and the ASME AMR Monthly Top 10 Most Downloaded lists. Dr. Nilakantan's Master's thesis has been downloaded over 3400 times (as of Aug 2012). Dr. Nilakantan and his work have been featured in various local, national, and international publications.

Dr. Nilakantan holds a PhD degree in Materials Science and Engineering from the University of Delaware (4.0 GPA), a MS degree in Mechanical Engineering from the University of Cincinnati (3.9 GPA), and a BE degree in Mechanical Engineering from PESIT, Visveswaraiah Technological University (gold medalist).

Dr. Nilakantan received his permanent residency in the US through the extraordinary ability category.

Education

- Ph.D., Materials Science and Engineering (awarded Jan 9, 2011)** 2007 - 2010
University of Delaware, DE, USA GPA 4.0 / 4.0
Dissertation Title Modeling the Impact of Flexible Textile Composites
through Multiscale and Probabilistic Methods
Awards Allan P. Colburn Best Doctoral Dissertation
- M.S., Mechanical Engineering (awarded Aug 31, 2006)** 2004 - 2006
University of Cincinnati, OH, USA GPA 3.9 / 4.0
Thesis Title Design and Development of an Energy Absorbing Seat
and Ballistic Fabric Material Model to Reduce Crew
Injury Caused by Acceleration from Mine/IED Blast
- B.E., Mechanical Engineering** 1999-2003
PES Institute of Technology, Bangalore, India Equiv. GPA 4.0 / 4.0
Visveswaraiah Technological University 10th Rank Holder

Experience

- Research Scientist 2015 - present
Teledyne Scientific & Imaging, Thousand Oaks, CA
- Senior Research Associate 2012 - 2015
M C Gill Composites Center
Dept. of Chemical Engineering & Materials Science
University of Southern California, CA, USA
- Research Associate 2010 - 2012
Center for Composite Materials
University of Delaware, DE, USA

Scholarship

Patents

- Anti Whiplash Seat for Passenger Vehicle (US 8,052,211 – issued Nov 8, 2011)
- Ballistic Resistant Fabric Armor (Pub. No. US 2010/0154621 A1)

Honors and Awards

Teledyne Scientific & Imaging

- Outstanding Achievement / Instant Cash Award, 2015
- Internal Research & Development (IRAD) Award,, 2015-2017

National

- Listed in American Men and Women of Science, 31st Edition, 2013
- Listed in Who's Who in America, 66th Edition, 2012
- Inducted into Sigma Xi, 2011
- SciVerse ScienceDirect Top 25 Hottest Articles (see publications), 2010

- American Society for Composites PhD Research Scholarship Award, 2009
- ASME AMR Top Ten Most Downloaded Articles (see publications), 2008
- ASME District B Travel Award for the International Student Conference, 2006

University of Delaware

- Center for Composite Materials Director’s Award, 2012
- Allan P. Colburn Prize for Best Doctoral Dissertation in Engineering and Mathematical Sciences, University of Delaware, 2011
- R.L. McCullough Scholars Award, Center for Composite Materials, 2011
- Center for Composite Materials Director’s Award, CCM Student Achievement Day, 2010
- Center for Composite Materials Director’s Award, U Delaware Honors Day, 2009
- Center for Composite Materials Progress Award, U Delaware Honors Day, 2008

University of Cincinnati

- University Graduate Scholar, University of Cincinnati, OH, USA, 2004-2007
- University of Cincinnati GSGA Full Conference Travel Award, 2006

Undergraduate

- Gold Medalist, 10th rank, Visveswaraiiah Technological University, India, 2003
- Distinction Award, Dept. of Mechanical Engineering, PESIT, VTU, India, 1999-2003

Prizes

- Nominee, ACMA ACE Innovation in Green Composites Design Award, *Reused Scrap Prepreg based End-Products: Composite Prosthetic Foot*, 2014
- Nominee, CAMX Award, *Sustainable Upcycling of Waste and Scrap Prepreg for Commercial End-Products*, 2014
- 1st place, CCM Student Achievement Day Poster Competition, University of Delaware, Newark, DE, 2010
- 2nd place, Baltimore-Washington SAMPE 14th Annual Student Symposium, Baltimore, MD, 2009
- 2nd place, SAMPE University Research Symposium International Competition, PhD Category, Long Beach, CA, 2008
- Merit prize, NASA Tech Briefs “Create the Future” Design Contest”, Energy Absorbing Seat Device, 2006

Professional Activities and Service

Editor

- Editor-in-Chief, Journal of Multifunctional Composites, 2013 - 2015
DESTech Publications Inc

Scientific Committee Member

- International Scientific Committee Member, 19th International Conference on Composite Structures ICCS18, Porto, Portugal, September 5-9, 2016.
- International Scientific Committee Member, 18th International Conference on Composite Structures ICCS18, Lisbon, Portugal, June 15-18, 2015.

- International Scientific Committee Member, 1st International Conference on Mechanics of Composites MECHCOMP2014, Stony Brook University, NY, June 8-12, 2014.

Session Chair and Symposium Organizer

- Session Developer and Chair, *Armor and Protection*, 32nd ASC Technical Conference, West Lafayette, IN, October 22-25, 2017.
- Session Developer and Chair, *Multifunctional Composites*, 32nd ASC Technical Conference, West Lafayette, IN, October 22-25, 2017.
- Session Developer and Chair, *Armor and Protection*, 31st ASC Technical Conference, Williamsburg, VA, September 19-22, 2016.
- Session Developer and Chair, *Multifunctional Composites*, 31st ASC Technical Conference, Williamsburg, VA, September 19-22, 2016.
- Category Chair, *Ballistic Materials and Applications*, SAMPE Long Beach 2016, Long Beach, CA, May 23-26, 2016.
- Session Developer and Chair, *Armor and Protection*, 30th ASC Technical Conference, East Lansing, MI, September 28-30, 2015.
- Session Developer and Chair, *Multifunctional Composites*, 30th ASC Technical Conference, East Lansing, MI, September 28-30, 2015.
- Session Chair, *Composite Armor*, CAMX 2014, Orlando, FL, October 13-16, 2014.
- Session Developer and Chair, *Armor and Protection*, 29th ASC Technical Conference, San Diego, CA, September 8-10, 2014.
- Session Developer and Chair, *Multifunctional Composites*, 29th ASC Technical Conference, San Diego, CA, September 8-10, 2014.
- Symposium Organizer, *Multifunctional Composites*, MECHCOMP2014, Stony Brook University, NY, June 8-12, 2014.
- Session Chair, *Dynamic Failure of Composites*, MECHCOMP2014, Stony Brook University, NY, June 8-12, 2014.
- Session Chair, *Multi-scale Modeling*, SAMPE 2012, Baltimore, MD, May 21-24, 2012.
- Symposium Organizer, *Behavior of Composite Materials and Structures: Experimental Testing, Sensing, and Computational Modeling*, ASME Applied Mechanics and Materials Conference McMAT-2011, Chicago, IL, May 31-June 2, 2011.
- Session Chair, *Sensing of Strain and Damage in Composite Materials - I*, ASME Applied Mechanics and Materials Conference McMAT-2011, Chicago, IL, May 31-June 2, 2011.
- Session Chair, *Computational Modeling of Composite Materials - I*, ASME Applied Mechanics and Materials Conference McMAT-2011, Chicago, IL, May 31-June 2, 2011.

Reviewer

- Composites Part A, Composites Part B, Composites Science and Technology, Composite Structures, International Journal of Impact Engineering, International Journal of Vehicle Structures and Systems, Journal of Composite Materials, Journal of Multifunctional Composites, Journal of Reinforced Plastics and Composites, Journal of Strain Analysis for Engineering Design, Journal of Thermoplastic Composite Materials, Journal of Textile Science and Engineering

Society Executive Positions Held

- Vice Chair of Communications, SAMPE Baltimore-Washington, 2011-2013.

Dr. Gaurav Nilakantan – Curriculum Vitae

- LinkedIn Group Manager for American Society for Composites, SAMPE Baltimore-Washington, A2E – Armor, Ballistics, Composites, and Defense Experts (also Group Owner).

Society Memberships

Current

- *American Society for Composites (ASC)*
Member (08-present), LinkedIn Group Manager (11-present)
- *Society for the Advancement of Material and Process Engineering (SAMPE)*
Los Angeles Chapter: Member (12-present)
B/W Chapter: Member (10-12), Vice Chair of Communications (11-13), LinkedIn Group Manager (11-present)
UD Chapter: Student member (07-10), Webmaster (07-10)

Past

- American Society of Mechanical Engineers (ASME)
- Golden Key International Honor Society
- International Association for Computational Mechanics (IACM)
- International Ballistics Society (IBS)
- LinkedIn
- Sigma Xi – The Scientific Research Society
- Textile Institute
- The American Ceramic Society (ACerS)
- The Fiber Society
- United States Association for Computational Mechanics (USACM)

University of Southern California

- Member, Graduate Seminar Committee, Dept. of Chemical Eng and Materials Sci, 2013.
- Webmaster, M.C. Gill Composites Center, 2013-2014
- Mentor, SAMPE USC Student Chapter, 2013-present

University of Delaware

- Session Chair, *Processing Science- III*, 2012 CCM Spring Research Reviews, June 20, 2012.
- Organizer, CCM Spring Research Reviews, Center for Composite Materials, March-June, 2011.
- Session Chair, *Mechanics and Design - II*, 2011 CCM Spring Research Reviews, March 23, 2011.
- Session Chair, *Mechanics and Design - V*, 2011 CCM Spring Research Reviews, June 15, 2011.

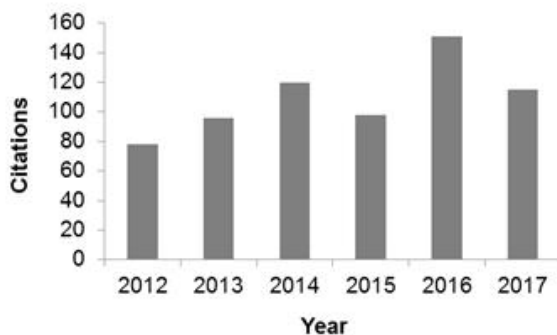
Miscellaneous

- Invited Judge, *Old Guard Oral Presentation Competition*, ASME District A SPDC, Temple University, April 1-2, 2011.
- Invited Judge, *SAMPE B/W Student Night Paper Competition*, University of Maryland Baltimore County, February 9, 2011.

Publications

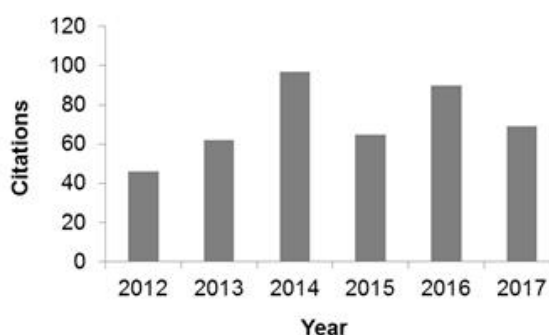
Metrics

According to *Google Scholar*
h-index: 16 (as of Sep 2017)



| | All | Since 2011 |
|-----------|-----|------------|
| Citations | 742 | 658 |
| h-index | 16 | 16 |
| i10-index | 23 | 20 |

According to *Scopus*
h-index: 13 (as of Sep 2017)



| | |
|-------------------------|-----|
| Documents | 29 |
| Total Citations | 467 |
| No. of Citing Documents | 273 |
| h-index | 13 |

Refereed Journals (21 total – 15 as first author)

21. *Reuse and Upcycling of Thermoset Prepreg Scrap: Case Study with Out-of-Autoclave Carbon Fiber/Epoxy Prepreg*, Gaurav Nilakantan; S. Nutt; **Journal of Composite Materials**, 2017.
20. *Generating virtual specimens for complex non-periodic woven structures by converting machine instructions into topological ordering rules*, B. Cox; Gaurav Nilakantan; O. Sudre; D. Marshall; **Composite Structures**, 2016.
19. *Experimental Investigation of the Role of Frictional Yarn Pull-Out and Windowing on the Probabilistic Impact Response of Kevlar Fabrics*, Gaurav Nilakantan; R.L. Merrill; M. Keefe; J.W. Gillespie Jr.; E.D. Wetzel; **Composites Part B**, Vol. 68, 2015, pp. 215-229.
18. *Effects of Fabric Target Shape and Size on the V50 Ballistic Impact Response of Soft Body Armor*, Gaurav Nilakantan; S. Nutt; **Composite Structures**, Vol. 116, 2014, pp. 661-669.
17. *Effects of Clamping Design on the Ballistic Impact Response of Soft Body Armor*, Gaurav Nilakantan; S. Nutt; **Composite Structures**, Vol. 108, 2014, pp. 137-150.
16. *Filament-level Modeling of Kevlar KM2 Yarns for Ballistic Impact Studies*, Gaurav Nilakantan; **Composite Structures**, Vol. 104, 2013, pp. 1-13.
15. *Yarn Pull-out Behavior of Plain Woven Kevlar Fabrics*, Gaurav Nilakantan; J.W. Gillespie Jr.; **Composite Structures**, Vol. 101, 2013, pp. 215-224.
14. *A Deterministic Finite Element Analysis of the Effects of Projectile Characteristics on the Impact Response of Fully Clamped Flexible Woven Fabrics*, Gaurav Nilakantan; E.D. Wetzel; T.A. Bogetti; J.W. Gillespie Jr.; **Composite Structures**, Vol. 95, 2013, pp. 191-201.

13. *Fiber-Matrix Interface Characterization through the Microbond Test*, S. Sockalingam; Gaurav Nilakantan; **International Journal of Aeronautical and Space Sciences**, Vol. 13, Issue 3, 2012, pp. 282-295.
12. *Ballistic Impact Modeling of Woven Fabrics Considering Yarn Strength, Friction, Projectile Impact Location, and Fabric Boundary Condition Effects*, Gaurav Nilakantan; J.W. Gillespie Jr.; **Composite Structures**, Vol. 94, Issue 12, 2012, pp. 3624-3634.
11. *Finite Element Analysis of Projectile Size and Shape Effects on the Probabilistic Penetration Response of High Strength Fabrics*, Gaurav Nilakantan; E.D. Wetzel; T.A. Bogetti; J.W. Gillespie Jr.; **Composite Structures**, Vol. 94, Issue 5, 2012, pp. 1846-1854.
10. *Effect of Statistical Yarn Tensile Strength on the Probabilistic Impact Response of Woven Fabrics*, Gaurav Nilakantan; M. Keefe; E.D. Wetzel; T.A. Bogetti; J.W. Gillespie Jr.; **Composites Science and Technology**, Vol. 72, Issue 2, 2012, pp. 320-329.
9. *Computational Modeling of the Probabilistic Impact Response of Flexible Fabrics*, Gaurav Nilakantan; M. Keefe; E.D. Wetzel; T.A. Bogetti; J.W. Gillespie Jr.; **Composite Structures**, Vol. 93, 2011, pp. 3163-3174.
8. *Multi-Scale Ballistic Impact Simulation of Dry Woven Fabric with Elastic Crimped Fibers*, A. Tabiei; Gaurav Nilakantan; **International Journal of Vehicles Structures and Systems**, Vol. 3, Issue 2, 2011, pp. 74-79.
7. *Experimental Evaluation and Statistical Characterization of the Strength and Strain Energy Density Distribution of Kevlar KM2 Yarns: Exploring Length-Scale and Weaving Effects*, Gaurav Nilakantan; A. Obaid; M. Keefe; J.W. Gillespie Jr.; **Journal of Composite Materials**, Vol. 45, Issue 17, 2011, pp. 1749-1769.
6. *Multiscale Modeling of the Impact of Textile Fabrics Based on Hybrid Element Analysis*, Gaurav Nilakantan; M. Keefe; T.A. Bogetti; J.W. Gillespie Jr.; **International Journal of Impact Engineering**, Vol. 37, Issue 10, 2010, pp. 1056-1071.
~ Previously cited in the SciVerse ScienceDirect Top 25 Hottest Articles
5. *On the Finite Element Analysis of Woven Fabric Impact Using Multiscale Modeling Techniques*, Gaurav Nilakantan; M. Keefe; T.A. Bogetti; R. Adkinson; J.W. Gillespie Jr.; **International Journal of Solids and Structures**, Vol. 47, Issue 17, 2010, pp. 2300-2315.
~ Previously cited in the SciVerse ScienceDirect Top 25 Hottest Articles
4. *Computational Assessment of Occupant Injury Caused by Mine Blasts Underneath Infantry Vehicles*, Gaurav Nilakantan; A. Tabiei; **International Journal of Vehicle Structures and Systems**, Vol. 1, Issue 3, 2009, pp. 50-58.
3. *Axial Crushing of Tubes as an Energy Dissipating Mechanism for the Reduction of Acceleration Induced Injuries from Mine Blasts underneath Infantry Vehicles*, A. Tabiei; Gaurav Nilakantan; **International Journal of Impact Engineering**, Vol. 36, Issue 5, 2009, pp. 729-736.
2. *Global/Local Modeling of Ballistic Impact onto Woven Fabrics*, M.P. Rao; Gaurav Nilakantan; M. Keefe; B.M. Powers; T.A. Bogetti, **Journal of Composite Materials**, Vol. 43, Issue 5, 2009, pp. 445-467.
1. *Ballistic Impact of Dry Woven Fabric Composites: A Review*, A. Tabiei; Gaurav Nilakantan; **Applied Mechanics Reviews**, Vol. 61, Issue 1, 2008, pp. 10801-10813.
~ Previously cited as #1 in the Monthly Top 10 Most Downloaded Articles

Conference Proceedings (25 total – 20 as presenter*)

30. Predictive and Validated Modeling of the V0-V100 Probabilistic Penetration Response of Aramid Soft Armor using Finite Element Analysis, Gaurav Nilakantan*; S. Horner; V. Halls; J. Zheng; *Personal Armour Systems Symposium (PASS) 2018, Washington DC, USA, October 1-5, 2018*
29. Virtual Ballistic Testing of Kevlar Soft Armor: Predictive and Validated Modeling of the V0-V100 Probabilistic Penetration Response; Gaurav Nilakantan*; *15th International LS-DYNA Users Conference, Dearborn, MI, USA, June 10-12, 2018*
28. Realistic Stochastic Virtual Microstructure Generation for Woven Fabrics and Textile Composites: The Thermal Growth Approach, Gaurav Nilakantan*; B. Cox; O. Sudre; *15th International LS-DYNA Users Conference, Dearborn, MI, USA, June 10-12, 2018*
27. Design Optimization Framework for a Thermal Protection System, M.P. Rao; Gaurav Nilakantan; O. Sudre; G.V. Srinivasan; *42nd Annual Conference on Composites, Materials, and Structures, Cocoa Beach, FL, USA, January 22-25, 2018*
26. Modeling the Material Non-linearity of Angle-Interlock C/SiC and C/C Panels Using Virtual Test Coupons Replicas and the Binary Model, Gaurav Nilakantan*; J. Cuneo; O. Sudre; *42nd Annual Conference on Composites, Materials, and Structures, Cocoa Beach, FL, USA, January 22-25, 2018*
25. World's First Predictive and Validated Yarn-level FEA Modeling of the V0-V100 Probabilistic Penetration Response of Fully-Clamped Kevlar Fabric, Gaurav Nilakantan*; *American Society for Composites 32nd Technical Conference, West Lafayette, IN, USA, October 22-25, 2017*
24. Generation of Realistic Stochastic Virtual Microstructures using a Novel Thermal Growth Method for Woven Fabrics and Textile Composites, Gaurav Nilakantan*; B. Cox; O. Sudre; *American Society for Composites 32nd Technical Conference, West Lafayette, IN, USA, October 22-25, 2017*
23. Modeling & Analysis Tools (DARPA Materials Development for Platforms), Gaurav Nilakantan*; O. Sudre; *National Space & Missile Materials Symposium, Indian Wells, CA, USA, June 26-29, 2017*
22. Material Design & Analysis Tools (DARPA Materials Development for Platforms), Gaurav Nilakantan*; Q. Yang; B. Cox; D. Marshall; O. Sudre; *41st Annual Conference on Composites, Materials, and Structures, Cocoa Beach, FL, USA, January 23-26, 2017*
21. Stochastic Aspects of High Fidelity Discrete Cracking Simulations, B. Cox; H. Bale; M. Blacklock; S. Lomov; Gaurav Nilakantan; et al.; *IUTAM Symposium, Baltimore, MD, USA, June 20-22, 2016*
20. Accelerated Materials Design and Development of a C/SiC Integral Textile Aeroshell for Hypersonic Vehicle Platforms using ICME, Gaurav Nilakantan*; D. Marshall; O. Sudre; *National Space & Missile Materials Symposium, Westminster, CO, USA, June 20-23, 2016*
19. Reuse Strategies for Carbon Fiber-Epoxy Prepreg Scrap, Gaurav Nilakantan*; R. Olliges; R. Su; S. Nutt; *CAMX 2014, Orlando, FL, USA, October 13-16, 2014*
18. Vacuum Bag Only Processing of Complex Shapes: Effect of Geometry, Material Properties, and Processing Conditions, Y. Ma; T. Centea; Gaurav Nilakantan; S. Nutt; *American Society for Composites 29th Technical Conference, San Diego, CA, USA, September 8-10, 2014*
17. State of the Art in the Deterministic and Probabilistic Ballistic Impact Modeling of Soft Body Armor: Filaments to Fabrics, Gaurav Nilakantan*; S. Nutt; *American Society for Composites 29th Technical Conference, San Diego, CA, USA, September 8-10, 2014*
16. Effects of Material, Friction, Nesting, Ply Orientation, and Clamping on the Ballistic Impact Behavior of Multi-layer Aramid Fabric Targets used in Soft Body Armor, Gaurav Nilakantan*; S. Nutt; *1st International Conference on Mechanics of Composites MECHCOMP2014, Stony Brook University, NY, USA, June 8-12, 2014*

Dr. Gaurav Nilakantan – Curriculum Vitae

15. Surface Porosity in Out-of-Autoclave Prepreg Processing: Causes and Reduction Strategies, L. Hamill; T. Centea; Gaurav Nilakantan; S. Nutt; *SAMPE TECH 2014, Seattle, WA, USA*, June 2-5, 2014
14. Effects of Fabric Target Size, Shape, and Clamping on the V50 Ballistic Impact Performance of Aramid Soft Body Armor, Gaurav Nilakantan*; S. Nutt; *SAMPE TECH 2014, Seattle, WA, USA*, June 2-5, 2014
13. Minimizing Surface Porosity in Vacuum Bag Only Prepreg Processing, L. Hamill; T. Centea; Gaurav Nilakantan; S. Nutt; D. Decker; *SME Composites Manufacturing 2014, Covington, KY, USA*, April 8-10, 2014
12. A Numerical Study of the Effects of Yarn Strength and Projectile Characteristics on the Probabilistic Penetration Response of a Woven Fabric, Gaurav Nilakantan*; M. Keefe; E.D. Wetzel; T.A. Bogetti; J.W. Gillespie Jr.; *ASME Applied Mechanics and Materials McMAT2011 Conference, Chicago, IL, USA*, May 31-June 2, 2011
11. Using LS-DYNA® to Computationally Assess the V₀-V₁₀₀ Impact Response of Flexible Fabrics Through Probabilistic Methods, Gaurav Nilakantan*; M. Keefe; E.D. Wetzel; T.A. Bogetti; R. Adkinson; J.W. Gillespie Jr.; *11th International LS-DYNA Users Conference, Dearborn, MI, USA*, June 6-8, 2010
10. Experimental and Numerical Testing of the V₅₀ Impact Response of Flexible Fabrics: Addressing the Effects of Fabric Boundary Slippage, Gaurav Nilakantan*; E.D. Wetzel; Richard Merrill; T.A. Bogetti; R. Adkinson; M. Keefe; J.W. Gillespie Jr.; *11th International LS-DYNA Users Conference, Dearborn, MI, USA*, June 6-8, 2010
9. An Experimental and Numerical Study of the Impact Response (V₅₀) of Flexible Plain Weave Fabrics: Accounting for Statistical Distributions of Yarn Strength, Gaurav Nilakantan*; M. Keefe; J.W. Gillespie Jr.; E.D. Wetzel; T.A. Bogetti; R. Adkinson; *1st Joint US-Canada Conference on Composites, 24th Annual ASC Technical Conference, University of Delaware, Newark, DE, USA*, September 15-17, 2009
8. A Study of Material and Architectural Effects on the Impact Response of 2D and 3D Dry Textile Composites using LS-DYNA®, Gaurav Nilakantan*; M. Keefe; J.W. Gillespie Jr.; T.A. Bogetti; R. Adkinson; *7th European LS-DYNA Conference, Salzburg, Austria*, May 14-15, 2009
7. A Numerical Investigation into the Effects of 3D Architecture on the Impact Response of Flexible Fabrics, Gaurav Nilakantan*; M. Keefe; J.W. Gillespie Jr.; T.A. Bogetti; R. Adkinson; *Second World Conference on 3D Fabrics and their Applications, Greenville, South Carolina, USA*, April 6-7, 2009
6. Simulating the Impact of Multi-layer Fabric Targets using a Multi-scale Model and the Finite Element Method, Gaurav Nilakantan*; M. Keefe; J.W. Gillespie Jr.; T.A. Bogetti; *9th International Conference on Textile Composites, Newark, DE, USA*, October 13-15, 2008
5. Modeling the Material and Failure Response of Continuous Filament Fabrics for use in Impact Applications, Gaurav Nilakantan*; M. Keefe; J.W. Gillespie Jr.; T.A. Bogetti; *9th International Conference on Textile Composites, Newark, DE, USA*, October 13-15, 2008
4. Novel Multi-scale Modeling of Woven Fabrics for use in Impact Studies, Gaurav Nilakantan*; M. Keefe; J.W. Gillespie Jr.; T.A. Bogetti; *10th International LS-DYNA Users Conference, Dearborn, MI, USA*, June 8-10, 2008
3. Novel Multi-scale Modeling of the Ballistic Impact of Plain Weave Fabrics using a Finite Element Analysis, Gaurav Nilakantan*; M. Keefe; J.W. Gillespie Jr.; T.A. Bogetti; *SAMPE '08 University Research Symposium, Long Beach, CA, USA*, May 18-21, 2008

2. Reduction of Acceleration Induced Injuries from Mine Blasts under Infantry Vehicles, A. Tabiei; Gaurav Nilakantan, *6th European LS-DYNA Users Conference, Gothenburg, Sweden*, May 29-30, 2007
1. Dynamic Axial Crushing of Circular Tubes: A Novel Numerical Formulation, Gaurav Nilakantan*, *ASME ISC, Istanbul, Turkey*, May 26-28, 2006

Invited Seminars

2. *Ballistic Impact Modeling of Aramid Soft Armor: State of the Art and Future Challenges*, Natick Soldier Research Development and Engineering Center, Natick, MA, USA, September 18, 2014
1. *State of the Art in Textile Modeling for Ballistic Applications*, Army Research Laboratory, Aberdeen Proving Grounds, MD, USA, July 25, 2012

Thesis / Dissertation

2. Modeling the Impact of Flexible Textile Composites through Multiscale and Probabilistic Methods, Gaurav Nilakantan, Ph.D. Dissertation, Dept. of Materials Science and Engineering, University of Delaware, DE, USA, 2010.
~ **Winner of the 2011 Allan P Colburn Best Doctoral Dissertation in Engineering and Mathematical Sciences at the University of Delaware**
1. Design and Development of an Energy Absorbing Seat and Ballistic Fabric Material Model to Reduce Crew Injury Caused by Acceleration from Mine/IED Blast, Gaurav Nilakantan, M.S. Thesis, Dept. of Mechanical Engineering, University of Cincinnati, OH, USA, 2006.
~ **Downloaded over 3405 times from the OhioLINK ETD repository as of Aug 2012**

Featured in the Press (full list available at www.drgaurav.org)

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