

# Timothy B. Hartman

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## Education

**Ph.D. Engineering Mechanics**, Virginia Polytechnic Institute and State University, May 2013

*Dissertation:* Geometrically Nonlinear Stress Recovery in Composite Laminates

Engineering Education Graduate Certificate

Future Professoriate Graduate Certificate

*Committee:* Scott W. Case (co-chair)

Michael W. Hyer (co-chair)

Romesh C. Batra

Shane D. Ross

Robert L. West

**B.S. Mechanical Engineering**, Cedarville University, May 2006 ( *GPA: 3.64/4.0* )

Passed Fundamentals of Engineering Exam, April 2006.

## Teaching

*Virginia Polytechnic Institute and State University*

Blacksburg, VA

Mechanics of Deformable Bodies, Spring 2012

Mechanical Behavior of Materials Laboratory, Fall 2008

*The High School Affiliated with the People's University of China*

Beijing, China

English Physics and Grammar, Fall 2007 – Spring 2008

## Employment

*Dassault Systèmes SIMULIA Corp.*

Providence, RI

Technical Customer Support Manager, May 2013 – *present*

Support customers in their use of SIMULIA's simulation software portfolio, primarily the Abaqus finite element analysis software suite, with an emphasis on modeling linear dynamics and acoustics analyses.

*Virginia Polytechnic Institute and State University*

Blacksburg, VA

Research Assistant, Scott W. Case, January 2010 – May 2013

Funded by Pratt & Whitney, East Hartford, CT. Simulated quasi-static punch experiment of graphite fiber reinforced composite laminate using progressive failure finite element analysis.

Research Assistant, Scott W. Case, January 2009 – December 2009

Funded by Army Research Laboratories. Designed single-stage gas gun and performed experimental tests to characterize the behavior of flexible fibrous composite plates under intermediate-velocity rigid-body impact.

### *GSE Systems*

Windsor Mill, MD

Systems Engineer, September 2006 – July 2007

Modeled combined cycle gas turbine power plant mechanical systems through numerical simulation tools for use in educational training environments.

### *ITT Industries*

Aerospace/Communications Division

Fort Wayne, IN

Manufacturing Engineering Intern, Summer 2005

Evaluated use of automated optical inspection equipment for in-line inspection of circuit card assembly production.

## Research

### *Journal Articles*

**T. Hartman**, M. Hyer, and S. Case. “Geometrically Nonlinear Stress Recovery in Composite Laminates.” *AIAA Journal*. 50.5 (May 2012) pp. 1156–1168.

### *Conference Proceedings*

**T. Hartman**, M. Hyer, and S. Case. “Geometrically Nonlinear Stress Recovery in Composite Laminates Subjected to Dynamic Loading.” *55th AIAA Structures, Structural Dynamics, and Materials Conference*. National Harbor, MD, 2014.

M. Tehrani, A. Boroujeni, **T. Hartman**, T. Haugh, S. Case, and M. Al-Haik. “Impact and Quasi-Static Mechanical Properties of a Carbon Fiber Reinforced Carbon Nanotube/Epoxy.” *Proceedings of the ASME 2012 International Mechanical Engineering Congress and Exposition*. Houston, TX, 2012.

**T. Hartman**, M. Hyer, and S. Case. “Geometrically Nonlinear Stress Recovery in Composite Laminates Considering Inertial Effects.” *American Society for Composites 27th Technical Conference*. Arlington, TX, 2012.

**T. Hartman**, M. Hyer, and S. Case. “Geometrically Nonlinear Stress Recovery in Composite Laminates.” *52nd AIAA Structures, Structural Dynamics, and Materials Conference*. Denver, CO, 2011.

**T. Hartman** and S. Case. “Failure of Spectra Shield UHMWPE Composites Due to Low Velocity Hard Body Impact.” *Proceedings of the 2010 SAMPE Fall Technical Conference*. Salt Lake City, UT, 2010.

### *Presentations*

*Geometrically Nonlinear Stress Recovery in Composite Laminates Including Inertial Effects*

27nd ASC Technical Conference, Arlington, TX, 02 October 2012.

*Geometrically Nonlinear Stress Recovery in Composite Laminates*

52nd AIAA Structures, Structural Dynamics, and Materials Conference, Denver, CO, 05 April 2011.

*Failure of Spectra Shield UHMWPE Composites Due to Low Velocity Hard Body Impact*

SAMPE Fall Technical Conference, Salt Lake City, UT, 13 October 2010.

## Honors and Awards

Jefferson Goblet Award for Best Student Paper, 52nd AIAA SDM Conference, April, 2011

NCCAA Sportsmanship Award in Men's Tennis, 2006

NAIA Scholar-Athlete in Men's Tennis, 2005, 2006

## Activities

### *Advising*

Undergraduate research with Matt Yaple

Virginia Tech 2013

Undergraduate research with David Allen

Virginia Tech 2012

### *Outreach*

Virginia Tech Graduate Honor System

Panelist 2011–2013

### *Conference Attendance*

American Society for Composites 27th Technical Conference

Arlington, TX October 2012

4th Conference on Higher Education Pedagogy

Blacksburg, VA February 2012

AIAA 52nd SDM Conference

Denver, CO April 2011

SAMPE Fall Technical Conference

Salt Lake City, UT October 2010

### *Workshop Attendance*

Scientific Programming with Python

Virginia Tech September 2012

High Performance Computing and Visualization Workshop

Virginia Tech August 2012

Introduction to LS-DYNA

LSTC June 2011

Graduate Teaching Assistant Workshop

Virginia Tech August 2008

### *Professional Affiliations*

American Institute of Aeronautics and Astronautics

Student Member 2011–2012

Society of Automotive Engineers

Student Member 2005–2006