**Sanjay Raja Arwade**
Associate Professor
Department of Civil & Environmental Engineering
University of Massachusetts, Amherst
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**Employment**

| | |
|---|---|
| Associate Professor | 2011-present |
| Assistant Professor | 2006-2011 |
| Civil & Environmental Engineering | University of Massachusetts, Amherst |
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| Assistant Professor | 2002 - 2006 |
| Civil Engineering | Johns Hopkins University |
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| Affiliated Professor | 2009 - present |
| Wind Energy Center | University of Massachusetts, Amherst |
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| Visiting Professor | |
| School of Construction Engineering | 2014 – Pontifical Catholic Univ. of Valparaiso, Chile |
| Civil & Environmental Engineering | 2013 – University of Perugia |
| Civil Engineering & Engineering Mechanics | 2013 – Columbia University |
| Civil Engineering | 2006-2008 – Johns Hopkins University |
| | |
| Visiting Faculty | Summer 2003 |
| Computer Science Research Institute | Sandia National Laboratories |

**Education**

Ph.D., Civil & Environmental Engineering 2002
Cornell University
Major Field: Structural Engineering. Minor Field: Theoretical & Applied Mechanics
Dissertation: Stochastic Characterization and Simulation of Material Microstructures with Application to Aluminum.
Advisor: Mircea Grigoriu

M.S., Civil & Environmental Engineering 1999
Cornell University
Major Field: Structural Engineering. Minor Field: Structural Mechanics
Thesis: Probabilistic Models for Aluminum Microstructure and Intergranular Fracture Analysis.
Advisor: Mircea Grigoriu

B.S.E., Civil Engineering & Operations Research 1996
*summa cum laude*
Princeton University
Thesis: Analysis of the Effect of Differential Support Motion on a Typical Reinforced Concrete Highway Bridge.
Advisor: George Deodatis

EIT 1997
New York State

### Awards and Honors

Lilly Teaching Fellow, University of Massachusetts, 2008-2009.

NSF New Century Scholar, selected for workshop participation, 2002.

John E. Perry Teaching Assistant Prize. Cornell University, 1997, 1998.

ACI (NJ Section) award for outstanding research in concrete structures, 1996.

Phi Beta Kappa, 1996.

Sigma Xi, 1996.

Tau Beta Pi, 1996.

# Research

### Research Interests

**Uncertainty quantification in structural and solid mechanics:** Numerous sources of system uncertainty such as material property variability and loading randomness generate response uncertainty in structural and solid mechanics problems. My interests in this area lie in developing: (1) new methods for representing the input uncertainties as random fields and generating samples of those random fields; (2) efficient methods for quantifying uncertainty in systems with large numbers of random input parameters and performing dimension reduction on such systems; (3) System reliability effects in the structural systems

**Wind turbine analysis and reliability:** Wind turbine research has concentrated largely on the energy-producing turbine itself, yet construction of the support structure can contribute up to 25% of the total life-cycle cost of an offshore turbine. I am working with collaborators on new methods for multi-physics, probabilistic simulation of offshore wind turbine support structures to allow designers to use quantitative risk-based approaches to design of such structures.

**Probabilistic damage modeling in random heterogeneous materials:** Deterministic approaches to modeling material strength neglects the inherent random heterogeneity present in materials ranging from the very new (steel foam) to the very old (wrought iron). Through computational simulations, validated by experiments, I am characterizing the way in which material heterogeneity manifests as uncertainty in material response that then influences structural reliabilities.

**Other interests**: Historic civil engineering structures; biomechanics; sustainability and the built environment.

**External Funding and Proposals**

**Awarded:**

Novel mooring systems for offshore energy generation systems ($51,000, PI with DJ DeGroot, Co-PI) Massachusetts Clean Energy Center 2016-2018.

Collaborative Research: GOALI: Efficient multiline mooring systems for floating wind turbines ($497,341 PI with DJ DeGroot, C Aubeny (Texas A&M), ML Maynard (UMaine) UMass portion $251,834) NSF 2015-2018.

Massive Timber Panels from Low-value Northeastern Woods ($390,925,Co-PI with PL Clouston and A Schreyer) NSF 2015-2018.

Collaborative Research: Advancing the Dissemination of the Creative Art of Structural/Civil Engineering ($760,394 PI with M Garlock (Princeton), CD Moen (Virginia Tech) UMass/Arwade portion $127,167) NSF 2014 - 2018

Risk and decision-making for the hurricane threat to offshore wind farms ($125,802 PI with AT Myers, JF Hajjar (Northeastern) EM Hines (Tufts) UMass/Arwade portion $68,495) Massachusetts Clean Energy Center 2014 - 2016

Collaborative research: GOALI: Advancing system reliability with application to light framed structures ($399,000 PI with BW Schafer (Johns Hopkins) CD Moen (Virginia Tech) UMass/Arwade portion $155,000) NSF 2013 - 2017

Collaborative research: Reliability-based hurricane risk assessment for offshore wind farms. ($325,000. PI with AT Myers and JF Hajjar (Northeastern) UMass/Arwade portion $146,000) NSF, 2012 - 2016

Calibration of reliability index considering system effects. ($10,000, co-PI with BW Schafer (Johns Hopkins) and C Moen (Virginia Tech). UMass/Arwade portion $3,333) American Iron and Steel Institute, 2012.

IGERT: Offshore Wind Energy Engineering, Environmental Science, and Policy. (Approximately $2 million, one of approximately 20 senior personnel, ED Baker PI). NSF, 2011-2016.

Collaborative Research: Reconfiguring steel structures: energy dissipation and buckling mitigation through the use of steel foams. ($340,000, PI with BW Schafer (Johns Hopkins) and JF Hajjar (Northeastern). UMass/Arwade portion $158,025) NSF, 2010-2012.

Reconfiguring steel structures: energy dissipation and buckling mitigation through the use of steel foams: REU supplement. ($6,000) National Science Foundation, 2011.

Modeling the design limit states of structural composite lumber: REU supplement. ($6,000, co-PI with PL Clouston) National Science Foundation, 2010.

Modeling the design limit states of structural composite lumber: REU supplement. ($6,000, co-PI with PL Clouston) National Science Foundation, 2009.

Modeling the design limit states of structural composite lumber. ($300,000, co-PI with PL Clouston) National Science Foundation, 2009-2011.

Adaptive use of historic truss bridges for civil engineering instruction. ($149,779, PI with AJ Lutenegger) National Science Foundation, 2008-2010.

A framework for microstructural design using Bayesian classifiers. ($287,000, PI with T Igusa) National Science Foundation, 2004-2007.

**Internal Funding and Proposals**

**Awarded:**

Field study of the Swiss legacy of structural art. ($2,500 PI) UMass International Programs Office, 2012.

FlexGrant for teaching/faculty development: Course development: *Perspectives on the evolution of structures.* ($500 each instance, PI) University of Massachusetts, Amherst, Office of Faculty Development / Center for Teaching, 2009-2010, 2013.

Preliminary experiments on the structural application of metal foams. ($30,000, PI) University of Massachusetts, Amherst, Faculty Research Grant, 2008-2009.

An engineer's guide to Baltimore. ($6,000, co-PI with R Sangree, graduate student) Johns Hopkins Center for Educational Resources, 2004-2005.

Interactive case studies: Evolution of structures. ($6,000, co-PI with R Sangree, graduate student) Johns Hopkins Center for Educational Resources, 2003-2004.

**Research Student and Postdoc Advising (3 Postdoc, 6 PhD, 12 MS/MCE, 17 BS/BSE)**

**Graduate & Postdoctoral**:
**University of Massachusetts, Amherst:**
Spencer Hallowell (Postdoc in progress)
Fiona O'Donnell (MS/PhD in progress)
Ignacio Cetrangolo (MS in progress)
Richard Racz (MS in progress)
Casey Fontana (PhD in progress, co-advised with DJ DeGroot)
Wystan Carswell (MS 2012, PhD 2015, co-advised with DJ DeGroot);
Yibing Xiang (Postdoc 2014-2015)
Kai Wei (Postdoc 2013-2015);
Hernan Pinto (Postdoc, 2009-2010);
Alireza Amini (PhD 2012);
Mohamad Krem (PhD 2012);
Brooks Smith (MS 2012);
Mohammadreza Moradi (PhD 2011);
Sean Kelton (MS 2009);
Patrick Veale (MS 2009);
Russell Winans (MS 2008);
**Johns Hopkins University and other institutions:**
Libin Tan (PhD 2008, Johns Hopkins);
Arghavan Louhghalam (MS 2007, Johns Hopkins);
Xiulin Sun (MCE 2005, Johns Hopkins);
Mitesh Popat (MS 2004, Johns Hopkins);

**Undergraduate (17 total students)**: Andrew Rock (BSE 2016) Ignacio Cetrangolo (BSE 2015); John Jermyn (BSE 2014); Zhiren Zhu (BSE 2013 ); Marc Fernandez (BSE 2012 ); Saranthip Rattanaserikiat (BSE 2011); Brian Post (BSE 2011); Terence DaCosta (BSE 2011 ); Meghan Krupka (BSE 2010); Daniel Posfai (BSE 2010); John Sullivan (BSE 2011 ); Randy Machon (BSE 2010); Kelly Shanahan (BSE 2010) Allen Sit (BSE 2010); Russell Winans (BSE 2007); Ryan Mones (BSE 2009); Kara Peterman (BS 2009 Swarthmore College). Ying Guan (BSE 2008, Johns Hopkins); Christina Terpeluk (BSE 2006, Johns Hopkins); Liakos Ariston (BSE 2005, Johns Hopkins); Thomas Lydigsen (BSE 2005, Johns Hopkins); Allan

Olson (BSE 2006, Johns Hopkins); Annette Tardiff (BSE 2004, Johns Hopkins); Russell Williams (Baltimore Polytechnic Institute, High School).

**Graduate Committee Member (¿40 total students from 5 departments and 4 institutions)**

**University of Massachusetts, Amherst**

Jennifer Beyer (PhD in progress, Geosciences); Jessica McBeck (PhD in progress, Geosciences); Gary Chang (PhD in progress, Mechanical Engineering); Maija Benitz (PhD in progress, Mechanical Engineering); Mark Reiland (PhD in progress, Environmental Conservation); Gordon Stewart (MS 2011, PhD 2015, Mechanical Engineering); Justin Herbert (PhD 2014, Geosci); Banafsheh Seyed-Aghazadeh (PhD 2014, Mech Eng); Brianna Tamboulian (PhD 2014, Mech Eng); Onur Yilmaz (MS 2014, Mech Eng); Sangrok Yeo (PhD 2016 expected); Selman Ozbayat (PhD 2013, Electrical Eng.); Tommy Sebastian (MS 2012 Mech. Eng.); Geoff McGuirk (MS 2012); Elizabeth Beauregard (MS expected, BCT); Emre Kalayci (MS 209, PhD, 2012); Charlie McLelland (MS 2012 expected, Mech. Eng.); Colin Roderick (MS 2012, Mech. Eng.); Xiao Ye (MS 2012, Mech Eng); Zhuo Yang (MS 2011 Building and Construction Tech.); Cihan Ciftci (PhD 2012); Dylan Chase (MS 2011, Mechanical Engineering); Sandeep Menon (PhD 2011, Mechanical Engineering); Stacy Canepari (MS 2009, Mechanical Engineering); Jon Lewis (MS 2009, Mechanical Engineering); Helena Charron (MS 2009); Quan Nguyen (MS 2009); Ryan Shackleton (PhD 2009, Geosciences); Shuangwen Shen (PhD 2008, Mechanical Engineering); Meltem Duran (MS 2009, PhD 2015, Mechanical Engineering); Carl Niemitz (MS 2007); Michael Mitchell (MS 2008); Andrew Jeffrey (MS 2007).

**Johns Hopkins University and other institutions**

Athina Spyridaki (PhD 2017 expected Columbia); Jenny Sideri (PhD 2017 expected Columbia); Aritra Chatterjee (PhD 2016 expected Virginia Tech); Spencer Hallowell (PhD 2016 expected Northeastern); Vahid Valamanesh (PhD 2015 Northeastern); Kirubel Teferra (PhD 2010 Columbia); Michael Shields (PhD 2010, Columbia); Mina Seif (PhD 2010, Johns Hopkins); Sun Koo Kim (MS 2005, Johns Hopkins); Haoyang Liu (PhD 2004, Johns Hopkins); Zailong Wan (PhD 2004, Johns Hopkins); Dubar Kamara (MS 2002, Johns Hopkins).

# Teaching

**University of Massachusetts, Amherst**

Probabilistic Methods in Structural Mechanics (CEE 615): Structural reliability, random processes and fields, heterogeneous materials, random vibrations.

Structural Analysis (CEE331): Force and deformation analysis of statically determinate and indeterminate frames and trusses.

Advanced Solid Mechanics (CEE630): Theory of elasticity, energy methods, elementary plasticity and fracture mechanics.

Finite Element Analysis (CEE605): Finite element analysis for solid mechanics problems.

Introduction to Civil Engineering (ENGIN 111): Two week module introducing basic concepts of structural engineering.

Perspectives on the Evolution of Structures (CEE211): Great works of structural design for a broad university audience including CEE majors and non-majors. New course adapted for instruction at UMass during Lilly Teaching Fellowship 2008-2009.

**Johns Hopkins University**

Advanced Structural Analysis (CE445): Matrix methods for linear and nonlinear analysis of trusses and frames.

Structural Mechanics (CE729): Theory of elasticity, energy methods, numerical methods.

Perspectives on the Evolution of Structures (CE141): Great works of structural design for a broad university audience including CE majors and non-majors.

Stochastic Micromechanics (CE728): Elements of probability theory, effective material properties, homogenization, material microstructure modeling.

Structural Reliability (CE786): Elements of probability theory, FORM, SORM, load modeling, component and system reliability.

**Summary table of UMass teaching experience**

(Ratings on a five point scale)

| Year | Term | Course | Enrollment | Course rating | Instructor rating |
|---|---|---|---|---|---|
| 2016 | Spring | Finite element analysis (CEE/MIE 605) | 33 | not yet available | not yet available |
| | Spring | Persp. Evol. Structures (CEE 211) | 32 | not yet available | not yet available |
| 2015 | Fall | Adv. Solid Mechanics (CEE/MIE 630) | 35 | not yet available | not yet available |
| | Spring | Finite element analysis (CEE/MIE 605) | 35 | 4.0 | 4.4 |
| 2014 | Fall | Prob. Meth. Struct. Mech. (CEE 615) | 7 | 3.8 | 4.3 |
| | Fall | Adv. Solid Mechancis (CEE/MIE 630) | 29 | 4.2 | 4.5 |
| | Spring | Finite element analysis (CEE/MIE 605) | 32 | 4.1 | 4.4 |
| | Spring | Persp. Evol. Structures (CEE 211) | 30 | 3.9 | 4.3 |
| 2013 | Fall | Adv. Solid Mechanics (CEE/MIE 630) | 21 | 4.3 | 4.7 |
| 2012 | Fall | Adv. Solid Mechanics (CEE/MIE 630) | 25 | 4.2 | 4.1 |
| | Spring | Persp. Evol. Structures (CEE 211) | 38 | 4.5 | 4.7 |
| | Spring | Prob. Meth. Struct. Mech. (CEE 615) | 4 | 4.3 | 4.8 |
| 2011 | Spring | Finite Element Analysis (CEE/MIE 605) | 24 | 3.0 | 3.4 |
| | Spring | Prob. Meth. Struct. Mech. (CEE 615) | 7 | 3.9 | 4.1 |
| 2010 | Fall | Structural Analysis (CEE 331) | 80 | 4.2 | 3.8 |
| | Spring | Structural Analysis (CEE 331) | 20 | 4.2 | 4.7 |
| | Spring | Persp. Evol. Structures (CEE 211) | 44 | 4.6 | 4.8 |
| 2009 | Fall | Adv. Solid Mechanics (CEE 630) | 13 | 4.2 | 4.8 |
| | Spring | Persp. Evol. of Structures (CEE 211) | 42 | 4.3 | 4.4 |
| 2008 | Fall | Structural Analysis (CEE 331) | 60 | 4.1 | 4.6 |
| | Spring | Structural Analysis (CEE 331) | 18 | 2.8 | 3.1 |
| 2007 | Fall | Adv. Solid Mechanics (CEE 630) | 13 | 4.1 | 4.5 |
| | Spring | Finite Elem. Analysis (CEE/MIE 605) | 10 | 4.4 | 4.9 |
| 2006 | Fall | Adv. Solid Mechanics (CEE 630) | 4 | 4.5 | 4.5 |

**Guest lectures and other teaching activity**

The City, A Multidisciplinary Perspective (Johns Hopkins); Introduction to Art History (Fordham); Structural Analysis (Cornell); Structural Reliability (Cornell); Lecture Day Colloquium (Western New England College); Guest critic at various architecture studios at UMass and the Maryland College Institute of Art; Research practicum advisor, Baltimore Polytechnic Institute.

# Service

**Professional Service**

**Committee membership**

ASCE Dynamics (2002-2006);
ASCE Probabilistic Methods Committee (2003-present, control member 2010 - 2012, vice-chair 2012-2013, chair 2013-);
Founding chairman of student awards subcommittee of ASCE PMC (2008-2014);
International Association for Structural Safety and Reliability, Comp. Mechanics (2003-present);
International Association for Structural Safety and Reliability, Material Modeling (2003-present).
International Network for Structural Art, Teaching Materials Group Leader (2011- present)

**Conference organizing/scientific committee**

Disseminating the creative art of structural/civil engineering, and NSF-funded workshop, 2015, 2016;
7th International Conference on Computational Stochastic Mechanics, 2014;
13th International Probabilistic Workshop, 2015;
Engineering Mechanics Institute Conference (2011, 2012, 2013, 2014, 2016);
International Conference on Structural Safety and Reliability 2013.

**Conference session organization**

US National Congress on Computational Mechanics (2009);
International Conference on Structural Safety and Reliability (2005, 2009, 2013);
ASCE Engineering Mechanics Conference (2007, 2008, 2009, 2014, 2016);
ASCE Probabilistic Methods Conference (2004, 2016).

**Reviewer / Editor**

**Associate Editor**: ASCE Journal of Engineering Mechanics (2014-present)
**Reviewer**: American Association for the Advancement of Science; International Journal of Architectural Heritage; Springer Verlag; Wind Engineering and Industrial Aerodynamics; Bioresources; Construction & Building Materials ; Journal of Materials in Civil Engineering ; Computer Physics Communications ; Thin Walled Structures ; ASCE Press; Metals; Int. Journal for Uncertainty Quantification; Journal of Engineering Mechanics; Metallurgical Transations; NASA; NSF CMMI; Probabilistic Engineering Mechanics; Romanian Science Foundation; Computer Methods in Applied Mechanics and Engineering; International Network for Structural Art; Scientia Iranica; Structural Safety;

**University Service**

**University of Massachusetts, Amherst**

CEE Department Personnel Committee (2012-present);
Graduate Program Director Civil & Environmental Engineering (2012 - present);
Search Committee Chair, Structural Engineering and Mechanics (2014-2015);
Search Committee, International Programs Office (2014);
Search Committee, Civil & Environmental Engineering (2011-2012);
Search committee, joint appointment in Architecture and Design, Landscape Architecture (2011-2012);
Search committee, extension professor in the program Building and Construction Technology (2010);
Search committee, proposal development specialist, University Research Development (2010);
Organizer of the Civil Engineering History and Heritage Lecture (2008-2014);

Department Curriculum Committee (2009-2012);
Departmental liaison to Architecture and Design Program (2008-present);
Departmental BS/MS committee (2008-2010);
Structural Engineering and Mechanics group seminar coordinator (2007-2010);
Structural Engineering and Mechanics faculty search committee (2007-2008);
Deptartment scholarship committee (2006-2007, 2010);
Undergraduate advising (2006-present);
Faculty meeting secretary (2007-2008);
Deptartment capstone design committee (2007-2008).

**Johns Hopkins University**

University ethics board juror (2005);
Deptartment undergraduate curriculum committee (2002-2006);
Deptartment seminar series coordinator (2003-2004);
ASCE student chapter advisor (2004-2006);
ASCE steel bridge team faculty advisor (2005);
Undergraduate advising (2003-2006);
Whiting School of Engineering external relations committee (2005-2006).

## Consulting, Professional Practice and other Professional Activity

Cold Formed Steel Research Consortium — 2013
Affiliated researcher

Flodesign Inc. — 2008
Wind turbine load analysis

Daedalus Cycles — 2007
Mechanical testing of bamboo bicycle tube connection details

STX Lacrosse — 2006-2008
Strength analysis and testing of lacrosse sticks

Engineering Society of Baltimore — 2004
Strength evaluation of structural roofing material from 19th century building

Intern Engineer — Summer 1996
Robert Silman Associates, New York City

## Outreach activities

Ingenuity Project at Baltimore Polytechnic Institute, guest lectures on structural engineering and student advising (2002-2005).

Women in Science and Engineering, Johns Hopkins University, presentations on structural engineering (2005).

Guest assistant curator, The George Peabody Library. Bridge Engineering in the Collection of the Peabody Library (2006).

# Publications

*indicates student or postdoc co-author

**Journal Articles**

**Published or in press:**

52. Wei* K, **Arwade SR**, Myers AT, Hallowell S, Hajjar JF, Hines EM "Toward Performance-based Evaluation for Offshore Wind Turbine Jacket Support Structures" *Renewable Energy* 97:709-721 (2016)

51. Wei* K, **Arwade SR**, Myers AT, Valamanesh* V, Pang W "Effect of wind and wave directionality on the structural performance of offshore wind turbines supported by jackets during hurricanes" *Wind Energy* DOI: 10.1002/we.2006 (2016)

50. Carswell* W, **Arwade SR**, DeGroot DJ, Myers AT "Natural Frequency Degradation and Permanent Accumulated Rotation for Offshore Wind Turbine Monopiles in Clay" *Renewable Energy* 97:319-330 (2016)

49. Valamanesh* V, Myers AT, **Arwade SR**, Hajjar JF, Hines EM, Pang W "Wind-wave Prediction Equations for Probabilistic Offshore Hurricane Hazard Analysis" *Natural Hazards* DOI: 10.1007/s11069-016-2331-z (2016)

48. Stewart* GM, Lackner MA, **Arwade SR**, Hallowell* S, Myers AT "Statistical Estimation of Extreme Loads for the Design of Offshore Wind Turbines" *Wind Engineering* 39:629-650 (2015)

47. Fontana* CM, Carswell* W, **Arwade SR**, DeGroot DJ, Myers AT "Sensitivity of the dynamic response of monopile-supported offshore wind turbines to structural and foundation damping" *Wind Engineering* 39:609-627 (2015)

46. **Arwade SR**, Deodatis G, Teferra K "Variability response functions for apparent material properties" *Probabilistic Engineering Mechanics* 44:28-34 (2016)

45. Wei K, **Arwade SR**, Myers AT, Valamanesh V "Directional effects on the reliability of non-axisymmetric support structures for offshore wind turbines under extreme wind and wave loadings" *Engineering Structures* 106:68-79 (2016)

44. Myers AT, **Arwade SR**, Valamanesh* V, Hallowell* S "Strength, Stiffness, Resonance and the Design of Offshore Wind Turbine Monopiles" *Engineering Structures* 100:332-341 (2015)

43. Hallowell* S, Myers AT, **Arwade SR** "Variability of breaking wave characteristics and associated impact loads on offshore wind turbines supported by monopiles" *Wind Energy* DOI:10.1002/we.1833 (2015)

42. Valamanesh* V, Myers AT, **Arwade SR** "Multivariate Analysis of Extreme Metocean Conditions for Offshore Wind Turbines" *Structural Safety* 2015:60-69 DOI:10.1016/j.strusafe.2015.03.002 (2015)

41. Carswell* W, Johansson J, Lohvolt F, **Arwade SR**, Madshus C, DeGroot DJ, Myers AT "Foundation Damping and the Dynamics of Offshore Wind Turbine Monopiles" *Renewable Energy* 80:724-736 (2015)

40. Carswell* W, **Arwade SR**, DeGroot DJ, Lackner MA "Soil-Structure Reliability of Offshore Wind Turbine Monopile Foundations" *Wind Energy* 18:483-498 DOI: 10.1002/we.1710 (2015)

39. Moradi* M, **Arwade SR** "Improving Buckling Response of the Square Steel Tube by Using Steel Foam" *Structural Engineering and Mechanics* 51:1017-1036 (2014)

38. Wei K, **Arwade SR**, Myers AT "Incremental wind-wave analysis of the structural capacity of offshore wind turbine support structures under extreme loading" *Engineering Structures* 79:58-69 (2014)

37. Ciftci* C, **Arwade SR**, Kane B, Brena SF "Analysis of the probability of failure for open-grown trees during wind storms " *Probabilistic Engineering Mechanics* 37:41-50 (2014)

36. Amini* A, **Arwade SR**, Clouston PL, Rattanaserikiat* S "Characterization and Probabilistic Modeling of the Mesostructure of Parallel Strand Lumber" *Journal of Materials in Civil Engineering* DOI: 10.1061/(ASCE)MT.1943-5533.0001116 (2014)

35. **Arwade SR**, Gioffre M "Validity of stationary probabilistic models for wind speed records of varying duration" *Renewable Energy* 69:74-81 (2014)

34. Yang* Z, Clouston PL, **Arwade SR** "Torsional Shear Strength and Size Effect in Eastern Species Laminated Veneer Lumber" *ASTM Advances in Civil Engineering Materials* *DOI: 10.1520/ACEM20130108 (2014)

33. Teferra K, **Arwade SR**, Deodatis G "Generalized variability response functions for two-dimensional elasticity problems" *Computer Methods in Applied Mechanics and Engineering* 272:121-137 (2014)

32. Ciftci* C, Kane B, Brena SF, **Arwade SR** "Loss in moment capacity of tree stems induced by decay" *Trees–Structure and Function* 28:517-529 (2014)

31. Szyniszewski S, Smith* BH, Hajjar JF, Schafer BW, **Arwade SR** "The mechanical properties of a sintered, hollow sphere, steel foam" *Materials & Design* 54:1083-1094 (2013)

30. Ciftci* C, Brena SF, Kane B, **Arwade SR**. The effect of crown architecture on dynamic amplification factor of an open-grown sugar maple (Acer saccharum L.). *Trees-Structure and Function* DOI 10.1007/s00468-013-0867-z (2013)

29. Krem* M, Hoque ST, **Arwade SR**, Breña SF "Structural configuration and building energy performance." *Journal of Architectural Engineering* 19:29-40 (2013)

28. Moradi* M, **Arwade SR**, Schafer BW "Computational evaluation of limit states of thin-walled channels made from steel foam." *Thin Walled Structures* 62:206-214 (2013)

27. Smith* BH, Szyniszewski S, Hajjar JF, Schafer BW, **Arwade SR** "Characterization of steel foams for structural components." *Metals* 2:399-410 doi:10.3390/met2040399 (2012)

26. Teferra* K, **Arwade SR**, Deodatis G "Stochastic variability of effective properties via the generalized variability response function." *Computers and Structures* 110-111:107-115 (2012)

25. Smith* BH, Szyniszewski S, Hajjar JF, Schafer BW, **Arwade SR** "Steel foam for structures: A review of applications, manufacturing and material properties." *Journal of Constructional Steel Research* 71:1-10 (2012)

24. Szyniszewski S, Smith* BH, Hajjar JF, **Arwade SR**, Schafer BW "Local buckling strength of steel foam sandwich panels." *Thin-Walled Structures* 59:11-19 (2012)

23. Mahdavi* M, Clouston PL, **Arwade SR** "A low-technology approach toward development of laminated bamboo lumber." *Construction and Building Materials* 29:257-262 (2012)

22. Pinto* H, **Arwade SR**, Veale* P "Response of open cell aluminum foams to fully reversed cyclic loading." *ASCE Journal of Engineering Mechanics* 137:911-918 (2012)

21. Pinto* H, **Arwade SR** "Damage accumulation model for aluminium-closed cell foams subjected to fully reversed cyclic loading." *Fatigue and Fracture in Engineering Materials and Structures* DOI 10.1111/j.1460-2695.2011.01591.x (2011)

20. Krupka* MT, **Arwade SR**, Clouston PL "Length effects in tensile strength in the orthogonal directions of structural composite lumber." *ASTM Journal of Testing and Evaluation* 39: DOI 10.1520/JTE103261(2011)

19. **Arwade SR**, Lackner M, Grigoriu M "Probabilistic models for wind turbine and wind farm performance." *Journal of Solar Energy Engineering* 133:10.1115/1.4004273. (2011)

18. Mahdavi* M, Clouston PL, **Arwade SR** "Development of Laminated Bamboo Lumber: a review of processing, performance and economical considerations." *Journal of Materials in Civil Engineering* 23:1036-1042 (2011)

17. Kelton* SL, **Arwade SR**, Lutenegger AJ "Variability of the mechanical properties of wrought iron from historic American truss bridges." *ASCE Journal of Materials in Civil Engineering* 25:638-647 (2011).

16. **Arwade SR**, Deodatis G "Variability response functions for effective material properties." *Probabilistic Engineering Mechanics Probabilistic Engineering Mechanics* 26:174-181 (2010).

15. **Arwade SR**, Winans* R, Clouston PL "Variability of the compressive strength of Parallel Strand Lumber." *ASCE Journal of Engineering Mechanics*. 136:405-412 (2010)

14. **Arwade SR**, Moradi* M, Louhghalam* A "Variance decomposition and global sensitivity for structural systems." *Engineering Structures*. 32:1-10 (2010)

13. Louhghalam* A, & **Arwade SR** "Prediction of incipient damage sites in composites using classifiers." *International Journal of Damage Mechanics* 19:233-260 (2010)

12. **Arwade SR**, Clouston PL, & Winans* R "Measurement and stochastic computational modeling of the elastic properties of parallel strand lumber." *ASCE Journal of Engineering Mechanics*. 135:897-905 (2009)

11. **Arwade SR** & Popat* M "Statistics and probabilistic modeling of simulated intergranular cracks." *Probabilistic Engineering Mechanics*. 24:117-127 (2009)

10. Dorgan* KM, **Arwade SR**, Jumars PA "Worms as wedges: Effects of sediment mechanics on burrowing behavior." *Journal of Marine Research* 66:219-254 (2008)

9. Tan* L, **Arwade SR** "Response classification of simple polycrystalline microstructures." *Computer Methods in Applied Mechanics and Engineering*. 197:1397-1409 (2008)

8. Dorgan* KM, **Arwade SR**, Jumars PA "Burrowing in marine muds by crack propagation: kinematics and forces." *Journal of Experimental Biology*. 210(23):4198-4212 (2007)

7. Liu* H, **Arwade SR**, Igusa T "Random composites characterization using a classifier model." *ASCE Journal of Engineering Mechanics*. 133(2):129-140 (2007).

6. **Arwade SR**, Ariston* L, Lydigsen* T "Structural behavior of the Bollman truss bridge at Savage, Maryland." *Association for Preservation Technology Bulletin*. 37(1):27-36 (2006)

5. Ferrante* F, **Arwade SR**, Graham-Brady L "A translation model for non-stationary, non-Gaussian random processes." *Probabilistic Engineering Mechanics*. 20(3):215-228 (2005).

4. **Arwade SR** "Translation vectors with non-identically distributed components." *Probabilistic Engineering Mechanics*. 20(2):158-167 (2005).

3. **Arwade SR**, Grigoriu M "Probabilistic model for polycrystalline microstructures with application to intergranular fracture." *ASCE Journal of Engineering Mechanics*. 130(9):997-1006 (2004)

2. **Arwade SR**, Grigoriu M "Evolution of crystallographic orientations in crystals subject to random and deterministic deformation." *Probabilistic Engineering Mechanics*. 18(4):289-299 (2003)

1. Grigoriu M, Ditlevsen O, **Arwade SR** "A Monte Carlo simulation model for stationary non-Gaussian processes." *Probabilistic Engineering Mechanics*. 18(1):87-95 (2003).

**Under review:**

1. Smith* BH, **Arwade SR**, Schafer BW, Moen CD "Design Capacity, Component and System Reliability in Cold Formed Steel Framed Buildings" *Engineering Structures* (in review)

2. Alvarez J, Brea SF, Arwade SR "Backbone curves for jacketed columns" *ACI Structural Journal* (in review)

**Chapters in edited volumes**

2. Clouston PL, Arwade SR, Amini* A "Characterization and strength modeling of laminated bio-based composites" *Bio-Based Composites for High-Performance Materials: From Strategy to Industrial Application* eds. Chollakup R, Smitthipong W, Nardin M, CRC Press (forthcoming)

1. Arwade, SR "Random microstructural models with application to small scale fracture." In Random Material Microstructures: Modelling and Material Behavior. K. Sobczyk and J. Trebicki eds. Institute of Fundamental Technological Research, Polish Academy of Sciences (2004).

**Non-reviewed Journal Publications**

1. Graham-Brady, L. L. Arwade, SR, Corr, D. J., Gutierrez, M. A., Breysse, D., Grigoriu, M., & Zabaras, N. "Probability and materials, from nano- to macro-scale: a summary." *Probabilistic Engineering Mechanics*. 21(3):193-199 (2006).

**Conference Proceedings**

47. Carswell W, Fontana C, Arwade SR, DeGroot DJ, Myers AT "Comparison of cyclic p-y methods for offshore wind turbine monopiles subjected to extreme storm loading." Proceedings of the ASME 2015 34th International Conference on Ocean, Offshore and Arctic Engineering OMAE2015. (2015)

46. Arwade SR, Schafer BW, Schafer DF, Schafer ST "Modern examples of structural art in metals." Structures Congress 2015, Portland, OR, (2015)

45. Wei K, Arwade SR, Myers AT, Hallowell S, Hajjar JF, Hines, EM "Performance Levels and Fragility for Offshore Wind Turbine Support Structures during Extreme Events" Structures Congress 2015, Portland, OR, (2015)

44. Valamanesh V, Myers AT, Arwade SR, Hajjar JF "The Impact of Peak Spectral Period in the Design of Offshore Wind Turbines for the Extreme Sea State" Structures Congress 2014, Boston, (2014)

43. Carswell W, Johansson J, Lohvolt F, Arwade SR, DeGroot DJ "Dynamic mudline damping for offshore wind turbine monopiles" Proceedings of the ASME 2014 33rd International Conference on Ocean, Offshore and Arctic Engineering OMAE2014 June 8-13, 2014, San Francisco, California, USA (2014)

42. Chatterjee A, Moen CD, Arwade SR, Schafer BW "System reliability sensitivity to fastener capacity in cold-formed steel wood-sheathed floor diaphragms" Eurosteel 2014, Naples, Italy, (2014)

41. Myers AT, Arwade SR, Manwell JF "Consideration of hurricanes and tropical cyclones in the design of offshore wind turbines." European Wind Energy Academy Conference, Barcelona, (2013)

40. Amini A, *Arwade SR*, Clouston PL "Stochastic characteristics and modeling of structural composite lumber" In *Proceedings of ICOSSAR 2013* Columbia University, New York (2013)

39. Valamanesh V, Myers AT, Hajjar JF, *Arwade SR* "Probabilistic Modeling of Joint Hurricane-induced Wind and Wave Hazards to Offshore Wind Farms on the Atlantic Coast" In *Proceedings of ICOSSAR 2013* Columbia University, New York (2013)

38. Carswell W, *Arwade SR*, Myers AT, Hajjar JF "Reliability analysis of monopile offshore wind turbine support structures" In *Proceedings of ICOSSAR 2013* Columbia University, New York (2013)

37. Szyniszewski S, Smith* BH, *Arwade SR*, Hajjar JF, Schafer BW. "Tensile and shear element erosion in metal foams." LS-DYNA Users Conference, (2012)

36. Szyniszewski S, Smith* BH, Hajjar JF, Schafer BW, *Arwade SR*. Towards the design of cold-formed steel foam sandwich panels. MST Specialty conference (2012)

35. Szyniszewski S, Smith* BH, Hajjar JF, *Arwade SR*, Schafer BW "Local buckling strength of steel foam sandwich panels" *Proceedings of the annual stability conference: Structural Stability Research Council* Grapevine, TX, (2012)

34. Smith* BH, Szyniszewski S, Hajjar JF, Schafer BW, *Arwade SR* "Material characterization and micro structural simulation of hollow spheres and PCM steel foams." *Proceedings of the annual stability conference: Structural Stability Research Council* Grapevine, TX, (2012)

33. Beauregard* E, Clouston PL, Arwade SR "Finite element analysis of wood-concrete composite with continuous metal connector." *Forest Products Society Convention* Washington, DC (2012)

32. Krem* M, Hoque ST, *Arwade SR* "Effect of built form configuration on energy and structural performance of skyscraper buildings" Building Enclosure Science and Technology Conference Atlanta, (2012)

31. Pinto H, Arwade SR, "Damage accumulation model for aluminum closed cell foams." Procedia Engineering, Volume 10, 2011, Pages 1967-1972, Proceedings of the International Conference on the mechanical behavior of materials, Lake Como, Italy (2011)

30. Smith BH, Szyniszewski S, Hajjar JF, Schafer BW, Arwade SR, "Characterization of steel foams for structural components." 2011 MetFoam conference, Busan, South Korea (2011)

29. Smith BH, Arwade SR, Szyniszewski S, Schafer BW, Hajjar JF, "Modeling hollow sphere cellular metals as a random microstructure." 2011 ASCE-EMI Engineering Mechanics Conference, Boston (2011)

28. Clouston PL, Arwade SR, Krupka MT, Rattanaserikiat S, Amini A "Microstructure and size effect in structural composite lumber.' NSF CMMI Grantees Conference, Atlanta (2011)

27. Arwade SR, Hajjar, JF, Schafer BW, Moradi M, "Steel foam material processing, properties, and potential structural applications." NSF CMMI Grantees Conference, Atlanta (2011)

26. Moradi* M, Arwade SR, Schafer BW "Steel foam mitigates instability in structural members" Proceedings of CELLMAT, the International Conference on Cellular Materials, Dresden, Germany (2010)

25. Clouston PL, Arwade SR, Krupka M* "Length effects in the orthotropic directions of structural composite lumber." Proceedings of the 11th World Congress on Timber Engineering, Trentino, Italy (2010)

24. Arwade SR, Deodatis G "Variability response functions for effective material properties." Proceedings of the 6th International Conference on Computational Stochastic Mechanics, Rhodes, Greece (2010)

23.Arwade SR, Winans*, R., Clouston, PL "Measurement and modeling of spatially varying strength in parallel strand lumber." In Proceedings of the 10th International Conference on Structural Safety and Reliability, Osaka, Japan (2009)

22. Arwade SR, Moradi* M "The use of variance decomposition in dimension reduction for stochastic structural systems." In Proceedings of the 10th International Conference on Structural Safety and Reliability, Osaka, Japan (2009)

21. Ferrante FJ, Brady LLG, Acton* K, Arwade SR "An overview of micromechanics-based techniques for the analysis of microstructural randomness in functionally graded materials" In Proceedings of the 9th International Conference on Multiscale and Functionally Graded Materials. Paulino, G.H., et al. eds., AIP Proceedings Series, Pp. 190-195, Oahu, HI, (2006)

20. Arwade SR "The Sobol decomposition as a tool for dimension reduction as applied to micromechanics problems." In Proceedings of the 18th Engineering Mechanics Conference, ASCE, Blacksburg, VA, (2007)

19. Louhghalam* A, Arwade SR "Prediction of damage initiation in random composite materials using classification." In Proceedings of the 18th Engineering Mechanics Conference, ASCE, Blacksburg, VA, (2007)

18. Arwade SR, Igusa T, Louhghalam* A, Tan* L. “Reduced order representation, analysis, and design of random material microstructures.” In Proceedings of the 2006 NSF-DMI grantees conference, St. Louis, (2006)

17. Arwade SR “Reduced order descriptors for random composite microstructures.” In CSM 06, the proceedings of the 2006 Computational Stochastic Mechanics Conference, Rhodes, Greece (2006)

16. Arwade SR, Popat* M “Statistics of intergranular cracks in polycrystals.” In ICOSSAR 05, the proceedings of the 9th International Conference on Structural Safety and Reliability, Rome, Italy (2005)

15. Ferrante* F, Arwade SR, Graham-Brady LL “Non-Gaussian, non-stationary simulation with spatially varying marginal probability distribution.” In ICOSSAR 05, the proceedings of the 9th International Conference on Structural Safety and Reliability, Rome, Italy (2005)

14. Arwade SR, Popat* M, Igusa T. “Microstructural design using bayesian classifiers: preliminary results on the problem of intergranular fracture.” In Proceedings of the NSF-DMI Grantees Conference. Scottsdale, AZ (2005)

13. Arwade SR, Schafer BW “‘Perspectives on the Evolution of Structures’: Teaching civil engineering history at Johns Hopkins” In Proceedings of the ASCE History and Heritage Committee at the ASCE National Conference and Exposition pp. 332-342. Baltimore, MD (2004)

12. Ariston* L, Lydigsen* T, Arwade SR “Structural behavior of the Bollman truss bridge at Savage, Maryland.” In Proceedings of the ASCE History and Heritage Committee at the ASCE National Conference and Exposition. pp. 312-331. Baltimore, MD (2004)

11. Arwade SR “Turning ‘Structures and the Urban Environment’ into ‘Perspectives on the Evolution of Structures. In Proceedings of Teaching and Scholarship in the Grand Tradition of Modern Engineering. A symposium held at Princeton University, August 9-23. Published by the Department of Civil and Environmental Engineering, Princeton University (2004)

10. Arwade SR “Translation vectors with non-identically distributed components.” In Proceedings of the 9th ASCE Conference on Probabilistic Methods. Albuquerque, NM (2004)

9. Schafer BW, Arwade SR “Mechanical properties of random networks.” In Proceedings of the 17th ASCE Conference on Engineering Mechanics. Newark, DE (2004)

8. Arwade SR, Grigoriu M “A model for non-stationary and anisotropic polycrystalline microstructures.” In Proceedings of the 9th International Conference on Applications of Statistics and Probability in Civil Engineering. Millpress. San Francisco, CA (2003)

7. Liu* H, Arwade SR, Igusa T “Random composites classification and damage estimation using a classifier model.” In Proceedings of the NSF-DMI grantees conference, Washington (2003)

6. Liu* H, Arwade SR, Igusa T “Random composites classification and damage estimation using a classifier model.” In Proceedings of the 16th ASCE Engineering Mechanics Conference. Seattle (2003)

5. Arwade SR, Grigoriu M “Stochastic evolution of crystallographic orientation.” In Proceedings of the Fourth International Conference on Computational Stochastic Mechanics. Kerkyra (Corfu), Greece (2002)

4. Arwade SR, Grigoriu M “The response of polycrystals to deterministic and random deformation.” In ICOSSAR 01, Proceedings of the 8th International Conference on Structural Safety and Reliability. Ed. Johnson, E. A. Newport Beach, CA (2001)

3. Iesulauro E, Ingraffea AR, Arwade SR, Wawrzynek PA “Simulation of grain boundary decohesion and crack initiation in aluminum microstructure models.” In Proceedings of 33rd National Symposium on Fatigue and Fracture Mechanics, Moran, WY (2001)

2. Arwade SR, Grigoriu M "The material state simulator: A prototype." 41st AIAA/ASME/ASCE/ AHS/ASC Structures, Structural Dynamics and Materials Conference. Atlanta, GA (1999)

1. Arwade SR, Grigoriu M, Ingraffea AR "Crack growth in stochastic microstructures." In Stochastic Structural Dynamics, Proceedings of the 4th International Conference on Stochastic Structural Dynamics. Ed: Spencer, B. F. & Johnson, E. A. Notre Dame, IN (1998)

**Invited Lectures and departmental seminars**

29. Arwade SR "The Creative Art of Structural Engineering" Springfield Technical Community College, October 2015

28. Arwade SR "Risk, reliability and offshore wind turbine support structures" Virginia Tech, March 2015

27. Arwade SR "Risk, reliability and offshore wind turbine support structures" Worcester Polytechnic Institute, 2014

26. Arwade SR "Mechanics and applications of steel foams" School of Construction Engineering, Pontifical Catholic University of Valparaiso, Chile, March 2014

25. Arwade SR "Green Buildings from Fathy to Yeang" Academic year inaugural lecture. School of Construction Engineering, Pontifical Catholic University of Valparaiso, Chile. March 2014.

24. Arwade SR "Stochastic homogenization of elastic material properties by the variability response method" University of Surrey (UK) 2013

23. Arwade SR "Stochastic homogenization of elastic material properties by the variability response method" University of Florence (UK) 2013

22. Arwade SR "Steel foam: characteristics and structural applications" Civil Engineering Department seminar, Ècole Polytechnique Fèdèrale de Lausanne. 2012

21. Arwade, SR "Pattern recognition techniques in solid mechanics." Civil Engineering Department seminar, University of Massachusetts, Dartmouth, September 2010.

20. Arwade, SR "Pattern recognition techniques and the mechanics of heterogeneous media." Civil Engineering Departmental Seminar, University of Perugia, Italy, June 2010.

19. Arwade, SR "Pattern recognition and statistical learning in stochastic mechanics." Stochastic Methods in Mechanics: Status and Challenges. Warsaw, Poland, September 2009.

18. Arwade, SR "Using pattern recognition to solve solid mechanics problems." Joint Civil and Mechanical Engineering seminar at the University of Maine, Orono, Maine, September 2008.

17. Arwade, SR "Solving solid mechanics problems without solving solid mechanics problems." Smith College Science and Engineering Seminar Series, October 2006.

16. Arwade, SR "The structural art of Fazlur Khan and Robert Maillart and the place of structure in Baltimore." Structural Engineers Institute of Maryland seminar series. March, 2006.

15. Arwade, SR "Approximate methods for solution of micromechanics problems involving uncertainty." Department of Civil and Environmental Engineering, Northeastern University. March 2006.

14. Arwade, SR "Material evolution and damage at the microscale." Department of Civil, Environmental, and Architectural Engineering, University of Colorado Boulder. March, 2005

13. Arwade, SR "The development of the infrastructure of New York City." Department of Environmental Design, Maryland Institute, College of Art. October, 2005.

12. Arwade, SR "Rapid prediction of damage patterns in microstructured materials" Department of Civil and Environmental Engineering, University of Delaware. April, 2005

11. Arwade, SR "Characterization of random composites using a classifier model." NSF workshop: Probability and materials, from nano- to macro-scale. Baltimore, MD, January 2005.

10. Arwade, SR "New structural forms in new materials." Department of Environmental Design, Maryland Institute, College of Art. October, 2004.

9. Arwade, SR "Teaching Structures and the Urban Environment at Johns Hopkins University." Teaching and Scholarship in the Grand Tradition of Modern Engineering. A symposium held at Princeton University, August 9-23, 2004.

8. Arwade, SR "The use of the George Peabody Library in structural engineering research." The George Peabody Library of the Johns Hopkins University. October, 2004.

7. Arwade, SR "A framework for microstructural material modeling." Department of Theoretical and Applied Mechanics Seminar. University of Nebraska. March 2004.

6. Arwade, SR "Random microstructural models with application to small scale fracture. Four lectures given at Random Material Microstructures: Modelling and Mechanical Behavior an advanced course sponsored by the Institute of Fundamental Technological Research of the Polish Academy of Sciences. Warsaw, Poland February 2-4 2004.

5. Arwade, SR, & Schafer, B. W. "'Perspectives on the Evolution of Structures': Teaching civil engineering history at Johns Hopkins" In Proceedings of the ASCE History and Heritage Committee at the ASCE National Conference and Exposition pp. 332-342 . Baltimore, MD, October 20-23, 2004.

4. Arwade, SR "Probabilistic research in Materials." Civil Engineering Department Seminar. Howard University. March 2004.

3. Arwade, SR "Simulation of Random Microstructures and Their Fracture." Department seminar. Department of Civil and Environmental Engineering, Cornell University, Ithaca, NY. April 24, 2003.

2. Arwade, SR "Stochastic characterization and simulation of material microstructures: Aluminum." Invited talk at Sandia National Laboratories, Albuquerque, New Mexico. March 27, 2002

1. Arwade, SR "Modeling and Simulation of Polycrystalline Microstructures." Invited talk at Sandia National Laboratories, Albuquerque, New Mexico. November 7, 2002

**Presentations, posters, and abstracts at national and international conferences**

55. Wei K, Arwade SR, Myers AT "Performance-based wind and wave analysis of offshore wind turbine structures under hurricane metocean environments of United States East Coast." Engineering Mechanics Conference, Stanford, 2015

54. Hallowell S, Myers AT, Hajjar JF, Arwade SR, Post N "Fragility functions for wind turbine blades under extreme loading conditions." Engineering Mechanics Conference, Stanford, 2015

53. Arwade SR, Teferra K, Deodatis G "Variability response functions for effective conductivity in continua." Engineering Mechanics Conference, Stanford, 2015

52. Chatterjee A, Biang G, Ngo H, Xiang Y, Moen CD, Arwade SR, Schafer BW "System effects in wood-sheathed cold-formed steel shear walls." Engineering Mechanics Conference, Stanford, 2015

51. Chatterjee A, Moen CD, Arwade SR, Schafer BW "Simulation Based System Reliability for Design." Engineering Mechanics Conference, Stanford, 2015

50. Wei K, Arwade SR, Myers AT, Pang W "Impact of Hurricane Wind/Wave Misalignment on the Analyses of Fixed-Bottom Jacket Type Offshore Wind Turbine ." North American Wind Energy Academy Conference, Blacksburg, VA 2015

49. Stewart G, Hallowell S, Lackner M, Myers AT, Arwade SR "Convergence of Extreme Loads for Offshore Wind Turbine Support Structures." North American Wind Energy Academy Conference, Blacksburg, VA 2015

48. Stewart G, Hallowell S, Lackner M, Myers AT, Arwade SR "Convergence of Extreme Loads for Offshore Wind Turbine Support Structures." North American Wind Energy Academy Conference, Blacksburg, VA 2015

47. Fontana C, Carswell W, Arwade SR, DeGroot DJ "The Role of Damping in Offshore Wind Turbine Dynamics." North American Wind Energy Academy Conference, Blacksburg, VA 2015

46. Xiang Y, Arwade SR, Chatterjee A, Moen CD, Schafer BW "Reliability sensitivity analysis in cold-formed steel wood-sheathed floor diaphragms " ASCE Engineering Mechanics Conference 2014 Hamilton, Ontario

45. Wei K, Arwade SR, Myers AT, Valamanesh V "Assessment of jacket-type offshore wind turbine under directional extreme loads by incremental wind-wave analysis" ASCE Engineering Mechanics Conference 2014 Hamilton, Ontario

44. Carswell* W, Arwade SR, DeGroot DJ "Behavior of Laterally-Loaded Offshore Wind Turbine Monopiles under Storm Loading Conditions" ASCE Engineering Mechanics Conference 2014 Hamilton, Ontario

43. Arwade SR, Zhang, G, Liu* Y, Clouston PL "Characterization and modeling of the micro- and nanostructure of structural composite lumber" ASCE Engineering Mechanics Conference 2014 Hamilton, Ontario

42. Carswell W, Arwade SR, Lohvolt F, Johansson J, DeGroot DJ "The Role of Soil Damping In the Structural Response of Offshore Wind Turbine Monopile Support Structures" ASCE Structures Congress 2014, March 2014, Boston.

41. Amini* A, *Arwade SR*, Clouston PL "Study of the effect of void shape on nonlinear compressive behavior of PSL." Forest Products Society Convention, Washington, DC, 2012

40. Carswell* W, *Arwade SR*, DeGroot DJ, Lackner MA "Soil structure interaction and the reliability of monopile offshore wind turbine support structures." ASCE/EMI Engineering Mechanics Conference, Notre Dame, 2012

39. *Arwade SR*, Grigoriu M "Stochastic characteristics and modeling of wind farm performance." ASCE/EMI Engineering Mechanics Conference, Notre Dame, 2012

38. Szyniszewski S, Smith BH, **Arwade SR**, Schafer BW, Hajjar JF "Reliability of steel foam components" ASCE/EMI Engineering Mechanics Conference, Notre Dame, 2012

37. Moradi M, *Arwade SR* "Global sensitivity analysis for correlated systems." ASCE/EMI Engineering Mechanics Conference, Notre Dame, 2012

36. **Arwade SR**, May VV, Schafer BW, Buonopane SG, Deodatis G "Teaching structural art: A multi-institution collaboration." ASEE Northeast Section Conference, Lowell, MA 2012

35. Yang Z, Clouston PL, Arwade SR. "Torsional shear strength and size effect of structural composite lumber." Forest Products Society 65th international conference, Portland, Oregon 2011

34. Krem MA, Arwade SR. "Effect of Building Morphology on Energy and Structural Performance of Mid?Rise Office Buildings." 2011 ASCE-EMI Engineering Mechanics Conference, Boston.

33. Smith BH, Arwade SR, Szyniszewski S, Schafer BW, Hajjar JF. "Review of Steel Foams: Processing, Properties and Applications." 2011 ASCE-EMI Engineering Mechanics Conference, Boston.

32. Szyniszewski S, Schafer BW, Hajjar JF, Smith BH, Arwade SR, "Metal Foam Computational Models for New Class of Structural Applications." 2011 ASCE-EMI Engineering Mechanics Conference, Boston.

31. Moradi M, Arwade SR, "Sensitivity analysis of buckling behavior of variable density steel foam C?channels using Sobol' decomposition." 2011 ASCE-EMI Engineering Mechanics Conference, Boston.

30. Carswell W, Arwade SR, DeGroot DJ. "Probability Analysis of Offshore Wind Turbine Soil-Structure Interaction." 2011 ASCE-EMI Engineering Mechanics Conference, Boston.

29. Amini A, Arwade SR, Clouston PL, Rattanaserikiat S. "Characterization and Probabilistic Modeling of Three Dimensional Voids in Parallel Strand Lumber." 2011 ASCE-EMI Engineering Mechanics Conference, Boston.

28. Teferra K, Arwade SR, Deodatis G, "Stochastic Variability of Homogenized Effective Properties via the Generalized Variability Response Function." 2011 ASCE-EMI Engineering Mechanics Conference, Boston.

27. Clouston PL, Arwade SR, Krupka MT, Rattanaserikiat S, Amini A "Modeling the design limit states of structural composite lumber." NSF CMMI Grantees Conference, January 2011, Atlanta

26. Arwade SR, Hajjar, JF, Schafer BW, Moradi M, "Reconfiguring steel structures: Energy dissipation and buckling mitigation through the use of steel foams." NSF CMMI Grantees Conference, January 2011, Atlanta

25. Arwade SR, Lutenegger AJ, Kelton SL "Adaptive use of historic truss bridges for civil engineering instruction." NSF CCLI Grantees Conference, January 2011, Washington, DC

24. Amini* A, Krupka* M, Arwade SR, Clouston PL "Experimental and computational characterization of the strength of structural composite lumber." Engineering Mechanics Conference of the ASCE Engineering Mechanics Institute, Los Angeles, CA, August 2010.

23. Veale* P, Pinto H, Arwade, SR "Fatigue response of open-cell aluminum foam to fully reversed cyclic loading." Engineering Mechanics Conference of the ASCE Engineering Mechanics Institute, Los Angeles, CA, August 2010.

22. Moradi* M, Arwade SR, "Uncertainty of the strength of composite Aluminum foam-steel tubes." Engineering Mechanics Conference of the ASCE Engineering Mechanics Institute, Los Angeles, CA, August 2010.

21. Moradi* M, Arwade SR "Limit states of thin-walled channels made of steel foam." Engineering Mechanics Conference of the ASCE Engineering Mechanics Institute, Los Angeles, CA, August 2010.

20. Dorgan* KM, Arwade SR, Jumars PA "Worms as wedges: effects of sediment mechanics on burrowing behavior." Integrative and Coparative Biology 49:E49 (2009).

19. Arwade SR, Clouston PL, Winans R* "Measurement and modeling of spatially varying strength in parallel strand lumber." 10th US National Congress on Computational Mechanics. Columbus, OH, July 2009.

18. Arwade, SR, Schafer BW "Cell wall stiffness, geometric uncertainty, and the elastic properties of cellular networks." The 2009 Joint ASCE-ASME-SES Conference on Mechanics and Materials. Blacksburg, VA, June 2009.

17 Moradi M* Arwade SR "Analysis of uncertainty in structural systems using the Sobol' decomposition." First International Conference of the Engineering Mechanics Institute of ASCE. Minneapolis, MN, May 18-21, 2008.

16 Arwade SR, Winans R* "Experimental measurement and probabilistic modeling of the spatial variation of Parallel Strand Lumber material properties." First International Conference of the Engineering Mechanics Institute of ASCE. Minneapolis, MN, May 18-21, 2008.

15. Winans* R, Arwade SR, Clouston PL "Computational models for the behavior of parallel strand lumber." Massachusetts undergraduate research conference, Amherst, MA, May 2007.

14. Tan* L, & Arwade, SR "Local pattern recognition and classification in the linear elastic deformation of two-dimensional polycrystals." US National Congress on Computational Mechanics, San Francisco, July 2007.

13. Arwade SR, Igusa T, Tan* L, Louhghalam* A "Classifier based methods for evaluating localization in heterogeneous materials." European Conference on Fracture (CFRAC), Nantes, France, June 2007.

12. Dorgan* KM, Jumars PA, Arwade SR "Burrowing in muddy sediments by crack propagation." Society for Integrative and Comparative Biology 2007 Annual Meeting, Phoenix, AZ. January 3-7, 2007.

11. Dorgan* KM, Arwade SR, Jumars PA "Worms as wedges: effects of sediment mechanics on burrowing behavior." Integrative and Coparative Biology 46:E35 (2006).

10. Louhghalam* A, Arwade SR, Igusa T "Representation of random composite materials using basis functions extracted from principal component analysis." US National Congress on Theoretical and Computational Mechanics, Boulder, Colorado, July 2006.

9. Tan* L, Arwade SR, Igusa T "Spatial statistics of crystallographic orientations: analysis without the Taylor assumption." US National Congress on Theoretical and Computational Mechanics, Boulder, Colorado, July 2006.

8. Dorgan* KM, Jumars PA, Arwade SR "Burrowing by fracture: Application of fracture models to bioturbation." Ocean Sciences Meeting, sponsored by AGU/ASLO/TOS, Honolulu, HI, 20-24 February, 2006.

7. Dorgan* KM, Jumars PA, Arwade SR "Mechanical constraints on burrowing in marine sediments." Monod Conference on Marine Biology, Roscoff, France, September 2005.

6. Arwade SR, Popat* M, Igusa T "Microstructural design using bayesian classifiers: preliminary results on the problem of intergranular fracture." NSF-DMI Grantees Conference. Scottsdale, AZ, January 3-6, 2005.

5. Liu* H, Arwade SR, Igusa, T "Random composites classification and damage estimation using a classifier model." NSF-DMI grantees conference, October 2003.

4. Arwade SR. Schafer BW "Behavior of spatially homogeneous and inhomogeneous random networks." 7th US National Congress on Computational Mechanics. Albuquerque, NM, August 2003.

3. Arwade SR, Grigoriu M "Effects of uncertainty in loading on crystal plasticity and orientation evolution." 36th Annual Technical Meeting; The Society for Engineering Science. Austin, TX. October 1999.

2. Arwade SR, Grigoriu M, Ingraffea AR, Miller MP, Dawson PR, Myers CR, Wawrzynek PA, Iesulauro E "Probabilistic representation of a polycrystalline microstructure with application to intergranular fracture." Fall meeting of the Materials Research Society. Boston, MA. November 1998.

1. Myers CR, Arwade SR, Iesulauro E, Wawrzynek PA, Grigoriu M, Ingraffea AR, Dawson PR "Digital Material: A framework for multiscale modeling of defects in solids." Fall meeting of the Materials Research Society. Boston, MA. November 1998.

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