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**Mechanical and Materials Engineering**
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## Education
- Ph.D., Theoretical and Applied Mechanics, Cornell University, 2001.
- M.S., Mathematics and Solid Mechanics, University of Bucharest, 1997
- B.S., Mathematics and Mechanics, University of Bucharest, 1995.

## Academic experience
- 2017-2022    Hergenrader Distinguished Scholar of Mechanical Engineering, University of Nebraska-Lincoln
- 2013-present    Professor, Mechanical and Materials Engineering, University of Nebraska-Lincoln.
- 2015 (Nov)    J.T. Oden Faculty Fellow, Institute for Computational Engineering and Sciences, University of Texas at Austin.
- 2015 (Sept)    Visiting Scholar, Aerospace Engineering, University of Padova, Italy.
- 2007 – 2013    Associate Professor, Mechanical and Materials Engineering, University of Nebraska-Lincoln.
- 2011 (April-August)    Visiting Associate Professor in Mechanical and Civil Engineering, Caltech, Pasadena, California.
- 2009 (Jan-Mar)    Visiting Scholar, Multiscale Dynamic Material Modeling, Sandia National Laboratories, Albuquerque, New Mexico.
- 2008 (Sept-Dec)    Visiting Scholar, Fracture Group, Cavendish Lab, University of Cambridge, UK.
- 2002-2004    Summer Research Fellow, Sandia National Labs, Albuquerque, NM.
- 2001-2007    Assistant Professor, Department of Engineering Mechanics, University of Nebraska-Lincoln.

## Membership in professional organizations
- ASME, USACM, SIAM

## Honors and awards
- 2020 CORROSION Best Paper Award, awarded for "*the most outstanding manuscript published in CORROSION Journal*" in the prior calendar year.
- Hergenrader Distinguished Scholar of Mechanical Engineering, University of Nebraska-Lincoln. Awarded August 2017.
- H-index = 31, Total citations: over 4,000. (from Google Scholar, January 2020).
- The College of Engineering Faculty Research and Creative Activity Award. University of Nebraska-Lincoln, 2016.
- The College of Engineering Faculty Service Award. University of Nebraska-Lincoln, 2007.
- The Henry Y. Kleinkauf Family Distinguished New Faculty Teaching Award. College of Engineering, University of Nebraska-Lincoln, 2004.

- Department of Engineering Mechanics teaching award at the Assistant Professor level (2002-2003).
- College of Engineering Student Advisory Board "Props for Profs" March 2004 award.

## Books and book chapters

1. F. Bobaru, J.T. Foster, P.H. Geubelle, S.A. Silling (eds), "Handbook of Peridynamic Modeling," CRC Press/Taylor and Francis Group, 2017.
2. F. Bobaru and G. Zhang, "Crack Branching in Dynamic Brittle Fracture", chapter 10 in *Handbook of Peridynamic Modeling*, F. Bobaru, J.T. Foster, P.H. Geubelle, S.A. Silling (eds). CRC Press/Taylor and Francis Group, 2017, pp: 245-316.
3. F. Bobaru, Z. Xu, and Y. Wang, "Peridynamic Modeling of Impact and Fragmentation", chapter 13 in *Handbook of Peridynamic Modeling*, F. Bobaru, J.T. Foster, P.H. Geubelle, S.A. Silling (eds). CRC Press/Taylor and Francis Group, 2017, pp: 379-404.
4. Z. Chen and F. Bobaru, "A Peridynamic Model for Corrosion Damage", chapter 15 in *Handbook of Peridynamic Modeling*, F. Bobaru, J.T. Foster, P.H. Geubelle, S.A. Silling (eds). CRC Press/Taylor and Francis Group, 2017, pp: 437-487.
5. Z. Chen, S. Niazi, G. Zhang, and F. Bobaru, "Peridynamic Functionally Graded and Porous Materials: Modeling Fracture and Damage", in *Handbook of Nonlocal Continuum Mechanics for Materials and Structures*, G.Z. Voyiadjis (ed.), 2018. https://doi.org/10.1007/978-3-319-22977-5_36-1

## Journal Publications

1. R. Karunakaran, S. Ortgies, A. Tamayol, F. Bobaru, M.P. Sealy, "Additive manufacturing of magnesium alloys", *Bioactive Materials*, **5**(1): 44-54, (2020). https://doi.org/10.1016/j.bioactmat.2019.12.004
2. S. Jafarzadeh, A. Larios, F. Bobaru, "Efficient Solutions for Nonlocal Diffusion Problems Via Boundary-Adapted Spectral Methods", *Journal of Peridynamics and Nonlocal Modeling* (2020). https://doi.org/10.1007/s42102-019-00026-6
3. S. Jafarzadeh, Z. Chen, S. Li, F. Bobaru, "A peridynamic mechano-chemical damage model for stress-assisted corrosion", *Electrochimica Acta*, **323**, 134795, (2019). https://doi.org/10.1016/j.electacta.2019.134795
4. Z. Chen, S. Niazi, F. Bobaru, "A peridynamic model for brittle damage and fracture in porous materials", *International Journal of Rock Mechanics and Mining Sciences*, **122**, 104059, (2019). https://doi.org/10.1016/j.ijrmms.2019.104059
5. J. Mehrmashhadi, L. Wang, F. Bobaru, "Uncovering the dynamic fracture behavior of PMMA with peridynamics: The importance of softening at the crack tip", *Engineering Fracture Mechanics*, **219**, 106617, (2019). https://doi.org/10.1016/j.engfracmech.2019.106617
6. J. Mehrmashhadi, Z. Chen, J. Zhao, F. Bobaru, "A stochastically homogenized peridynamic model for intraply fracture in fiber-reinforced composites", *Composites Science and Technology*, **182**, 107770 (2019). https://doi.org/10.1016/j.compscitech.2019.107770
7. S. Jafarzadeh, Z. Chen, F. Bobaru, "Computational modeling of pitting corrosion ", *Corrosion Reviews*, **37**(5): 419-439 (2019). https://doi.org/10.1515/corrrev-2019-0049
8. S. Jafarzadeh, Z. Chen, J. Zhao, F. Bobaru, "Pitting, lacy covers, and pit merger in stainless steel: 3D peridynamic models", *Corrosion Science*, **150**:17-31 (2019). https://doi.org/10.1016/j.corsci.2019.01.006
9. J. Mehrmashhadi, Y. Tang, X. Zhao, Z. Xu, J. Pan, Q.V. Le, F. Bobaru, "The Effect of Solder Joint Microstructure on the Drop Test Failure: a Peridynamic Analysis", *IEEE Transactions on Components, Packaging and Manufacturing Technology*, **9**(1): 58 - 71 (2019). https://doi.org/10.1109/TCPMT.2018.2862898

10. J. Zhao, Z. Chen, J. Mehrmashhadi, F. Bobaru, "Construction of a peridynamic model for transient advection-diffusion problems", *International Journal of Heat and Mass Transfer*, **126,** Part B: 1253-1266 (2018). https://doi.org/10.1016/j.ijheatmasstransfer.2018.06.075

11. S. Jafarzadeh, Z. Chen, F. Bobaru, "Peridynamic Modeling of Intergranular Corrosion Damage", *Journal of The Electrochemical Society*, **165**(7): C362-C374 (2018). https://doi.org/10.1149/2.0821807jes

12. Z. Xu, G. Zhang, Z. Chen, F. Bobaru, "Elastic vortices and thermally-driven cracks in brittle materials with peridynamics", *International Journal of Fracture*, **209**(1-2): 203–222 (2018). https://doi.org/10.1007/s10704-017-0256-5

13. G. Zhang, G. A. Gazonas, F. Bobaru, "Supershear damage propagation and sub-Rayleigh crack growth from edge-on impact: A peridynamic analysis", *International Journal of Impact Engineering*, **113**: 73-87 (2018). https://doi.org/10.1016/j.ijimpeng.2017.11.010

14. S. Li, Z. Chen, L. Tan, F. Bobaru, "Corrosion-induced embrittlement in ZK60A Mg alloy", *Materials Science and Engineering A*, **713**: 7-17 (2018). https://doi.org/10.1016/j.msea.2017.12.053

15. S. Jafarzadeh, Z. Chen, F. Bobaru, "Peridynamic modeling of repassivation in pitting corrosion of stainless steel", *Corrosion*, **74**(4): 393-414 (2018). http://corrosionjournal.org/doi/abs/10.5006/2615

16. Q. V. Le, F. Bobaru, "Surface corrections for peridynamics models in elasticity and fracture", *Computational Mechanics*, **61**(4): 499-518 (2018). http://rdcu.be/vpxv

17. Q.V. Le, F. Bobaru, "Objectivity of State-Based Peridynamic Models for Elasticity", *Journal of Elasticity*, **131**(1): 1-17 (2018). https://doi.org/10.1007/s10659-017-9641-6

18. G. Zhang and F. Bobaru, "Modeling the evolution of fatigue failure with peridynamics", *Romanian Journal of Technical Sciences - Applied Mechanics*, **61**(1): 22-40 (2016).

19. S. Li, Z. Chen, F. Wang, B. Cui, L. Tan, and F. Bobaru, "Analysis of Corrosion-Induced Diffusion Layer in ZK60A Magnesium Alloy", *Journal of The Electrochemical Society*, **163**(13): C784-C790 (2016).

20. Z. Chen, D. Bakenhus, and F. Bobaru, "Advantages of using a constructive peridynamic kernel for elasticity", *Computer Methods in Applied Mechanics and Engineering*, **311**: 356-373 (2016).

21. G. Zhang, Q.V. Le, A. Loghin, A. Subramaniyan, and F. Bobaru, "Validation of a peridynamic model for fatigue cracking", *Engineering Fracture Mechanics*, **162**: 76-94 (2016).

22. G. Sarego, Q. V. Le, F. Bobaru, M. Zaccariotto, and U. Galvanetto, "Linearized State-based Peridynamics for 2D problems", *International Journal for Numerical Methods in Engineering*, **108**(10): 1174-1197 (2016).

23. Z. Chen, G. Zhang, and F. Bobaru, "The Influence of Passive Film Damage on Pitting Corrosion", *Journal of The Electrochemical Society*, **163**(2): C19-C24 (2016).

24. F. Bobaru and G. Zhang, "Why do cracks branch? A peridynamic investigation of dynamic brittle fracture", *International Journal of Fracture*, **196**(1): 59-98 (2015).

25. Z. Chen and F. Bobaru, "Selecting the kernel in a peridynamic formulation: A study for transient heat diffusion", *Computer Physics Communications*, **197**: 51-60 (2015).

26. Z. Cheng, G. Zhang, Y. Wang, and F. Bobaru, "A peridynamic model for dynamic fracture in functionally graded materials", *Composite Structures*, **133**: 529-546 (2015).

27. Z. Chen and F. Bobaru, "Peridynamics modeling of pitting corrosion damage", *Journal of the Mechanics and Physics of Solids*, **78**: 352–381 (2015).

28. W. Hu, Y. Wang, J. Yu, C-F. Yen, and F. Bobaru, "Impact damage on a thin glass plate with a thin polycarbonate backing", *International Journal of Impact Engineering*, **62**:152-165 (2013).

29. F. Bobaru, Y.D. Ha, and W. Hu, "Damage progression from impact in layered glass modeled with peridynamics", *Open Engineering*, **2**(4): 551–561 (2012).

30. F. Bobaru and W. Hu, "The meaning, selection, and use of the peridynamic horizon and its relation to crack branching in brittle materials", *International Journal of Fracture*, **176**: 215–222 (2012).

31. W. Hu, Y.D. Ha, F. Bobaru, and S.A. Silling, "The formulation and computation of the nonlocal J-integral in bond-based peridynamics", *International Journal of Fracture*, **176**: 195–206 (2012).
32. W. Hu, YD. Ha, and F. Bobaru, "Peridynamic model for dynamic fracture in unidirectional fiber-reinforced composites", *Computer Methods in Applied Mechanics and Engineering*, **217–220**: 247–261 (2012).
33. F. Bobaru and M. Duangpanya, "A Peridynamic Formulation for Transient Heat Conduction in Bodies with Evolving Discontinuities", *Journal of Computational Physics*, **231**(7): 2764-2785 (2012).
34. YD. Ha and F. Bobaru, "Characteristics of dynamic brittle fracture captured with peridynamics", *Engineering Fracture Mechanics*, **78**: 1156–1168 (2011).
35. F. Bobaru and YD. Ha, "Adaptive refinement and multiscale modeling in 2D Peridynamics", *International Journal for Multiscale Computational Engineering*, **9**(6): 635-659 (2011).
36. F. Bobaru, "Peridynamics and Multiscale Modeling" Editorial in Special Issue on "Advances in Peridynamics", *International Journal for Multiscale Computational Engineering*, **9**(6): vii-ix (2011).
37. W. Hu, YD. Ha, and F. Bobaru. "Modeling Dynamic Fracture and Damage in Fiber-Reinforced Composites with Peridynamics", *International Journal for Multiscale Computational Engineering*, **9**(6): 707–726 (2011).
38. A.L. Collins, J.W. Addiss, S.M. Walley, K. Promratana, F. Bobaru, W.G. Proud, D.M. Williamson, "The effect of rod nose shape on the internal flow fields during the ballistic penetration of sand", *International Journal of Impact Engineering*, **38**(12): 951-963 (2011).
39. F. Bobaru and M. Duangpanya, "The peridynamic formulation for transient heat conduction," *International Journal of Heat and Mass Transfer*, **53**(19-20): 4047-4059 (2010).
40. YD. Ha and F. Bobaru, "Studies of dynamic crack propagation and crack branching with peridynamics," *International Journal of Fracture*, **162**(1-2): 229-244 (2010).
41. S. A. Silling, O. Weckner, E. Askari, and F. Bobaru, "Crack nucleation in a peridynamic solid," *International Journal of Fracture*, **162**(1-2): 219-227 (2010).
42. F. Bobaru, M. Yang, L.F. Alves, S.A. Silling, E. Askari, and J. Xu, "Convergence, adaptive refinement, and scaling in 1D peridynamics", *International Journal for Numerical Methods in Engineering*, **77**: 852-877 (2009).
43. F. Bobaru, J.S. Chen, and J. A. Turner, "Advances in the Dynamics of Granular Materials", *Mechanics of Materials*, **41**(6): 635-636, (2009).
44. K. Rattanadit, F. Bobaru, K. Promratana, and J. A. Turner, "Force chains and resonant behavior in bending of a granular layer on an elastic support", *Mechanics of Materials*, **41**(6): 691-706, (2009).
45. P. Qiao, M. Yang, and F. Bobaru, "Impact mechanics and high-energy absorbing materials: review", *Journal of Aerospace Engineering*, **21**(4): 235-248 (2008).
46. F. Bobaru, "Influence of van der Waals forces on increasing the strength and toughness in dynamic fracture of nanofiber networks: a peridynamic approach", *Modelling and Simulation in Materials Science and Engineering,* **15**: 397-417 (2007).
47. F. Bobaru, "Designing optimal volume fractions for functionally graded materials with temperature-dependent material properties", *Journal of Applied Mechanics*, **74**: 861-874 (2007).
48. W. Kang, J.A. Turner, F. Bobaru, L. Yang, and K. Rattanadit, "Granular layers on vibrating plates: Effective bending stiffness and particle-size effects", *Journal of the Acoustical Society of America*, **121**: 888-896 (2007).
49. F. Bobaru and S. Rachakonda, "E(FG)2: a new fixed-grid shape optimization method based on the element-free Galerkin meshfree analysis", *Structural and Multidisciplinary Optimization*, **32**(3): 215-228 (2006).
50. R.K. Lakkaraju, F. Bobaru, and S.L. Rohde, "Optimization of multilayer wear-resistant 3 thin films using finite element analysis on stiff and compliant substrates", *Journal of Vacuum Science and Technology (A)*, **24** (1): 146-155 (2006).

51. S.A. Silling and F. Bobaru, "Peridynamic modeling of membranes and fibers", *International Journal of Non-Linear Mechanics*, **40**(2-3): 395-409 (2005).
52. F. Bobaru and S. Rachakonda, "Optimal shape profiles for cooling fins of high and low conductivity", *International Journal of Heat and Mass Transfer*, **47**(23): 4953-4966 (2004).
53. F. Bobaru and S. Rachakonda, "Boundary layer in shape optimization of convective fins using a meshfree approach", *International Journal for Numerical Methods in Engineering*, **60**(7): 1215-1236 (2004).
54. F. Bobaru and Subrata Mukherjee, "Meshless approach to shape optimization of linear thermoelastic solids", *International Journal for Numerical Methods in Engineering*, **53**(4): 765-796 (2002).
55. F. Bobaru and S. Mukherjee, "Shape Sensitivity Analysis and Shape Optimization in Planar Elasticity Using the Element-Free Galerkin Method", *Computer Methods in Applied Mechanics and Engineering*, **190**(32-33) 4319-4337 (2001).
56. F. Bobaru, "Prestressed Elastic Solid Containing a Crack, Subjected to Normal or Tangential Loadings", *Revue Roumaine des Science Technique, Serie de Mecanique Applique*, **41**(5-6): 421-429 (1996).

## Peer Reviewed Papers in Conference Proceedings

1. **F. Bobaru**, J. Mehrmashhadi[2], Z. Chen, and S. Niazi[2], In: The ASC 33rd Technical Conference, Sept. 24-28th, Seattle, WA, (9pp) (2018).
2. **F. Bobaru**, G. Zhang. "Transition from damage to localized cracks in dynamic fracture of polycrystalline ceramics", X-DMS 2015 eXtended Discretization MethodS, Ferrara, Italy, Sept. 9-11, (2pp) (2015).
3. W. Hu[2], Y.D. Ha, and **F. Bobaru**, "Peridynamic models for dynamic fracture in an asymmetrically loaded unidirectional composite", Proceedings of the Computational Structural Engineering Institute of Korea (COSEIK) Annual Conference, Seoul, April 12-13, Korea (4pp) (2012).
4. **F. Bobaru**, and Y.D. Ha, "Peridynamic modeling of dynamic brittle fracture in a multi-layered glass system", Proceedings of the Society for the Advancement of Material and Process Engineering, *SAMPE 2012*, Baltimore, Maryland, May 22-24, USA (10pp) (2012).
5. Y.D. Ha, and **F. Bobaru**, "Dynamic brittle fracture captured with peridynamics", Proceedings of the ASME 2011 International Mechanical Engineering Congress & Exposition IMECE 2011, November 11-17, 2011, Denver, Colorado, USA (6pp), paper number IMECE-65515 (2011).
6. J. Addiss, A. Collins, **F. Bobaru**, K. Promratana, and W. G. Proud, "Dynamic behaviour of granular materials at impact", The 9th International DYMAT Conference on the Mechanical and Physical Behaviour of Materials under Dynamic Loading (6pp), (2009).
7. E. Askari, **F. Bobaru**, R. B. Lehoucq, M. L. Parks, S. A. Silling, and O. Weckner, "Peridynamics for multiscale materials modeling," Scientific Discovery through Advanced Computing conference, SCIDAC 2008. *Journal of Physics: Conference Series*, Vol. **125** (2008) 012078 (11pp). DOI: 10.1088/1742-6596/125/1/012078
8. **F. Bobaru**, K. Rattanadit, and J. A. Turner, "Coupled Dem-Fem For Modeling Granular Layers On Vibrating Elastic Structures" International Conference on Computational Methods for Coupled Problems in Science and Engineering, COUPLED PROBLEMS 2007, M. Papadrakakis, E. Oñate and B. Schrefler (Eds), CIMNE, Barcelona, (2007).
9. J.A. Turner, W. Kang, **F. Bobaru**, L. Yang, and K. Rattanadit, "Influence of Particle Size on the Vibration of Plates Loaded with Granular Material", in Proceedings of SPIE Vol. 6217, 621710, pp: 1-8 (2006).

10. **F. Bobaru**, S.A. Silling, and H. Jiang, "Peridynamic fracture and damage modelling of membranes and nanofiber networks", Proceedings of the XI International Conference on Fracture, Turin, Italy, March 20-25, 5748, pp: 1-6 (2005).
11. R.K. Lakkaraju[1], **F. Bobaru**, and S.L. Rohde, "Optimization of Multilayer Wear-resistant Thin Films Using Finite Element Analysis", in *Tribological and Decorative Coating*, the 48th Society of Vacuum Coaters Technical Conference Proceedings, ISSN 0737-5921, pp: 604-609 (2005).
12. **F. Bobaru** and H. Jiang, "Optimization of functionally graded materials with temperature dependent properties: a meshfree solution". The XXI International Congress of Theoretical and Applied Mechanics, August 2004, Warsaw, Poland, ISBN 83-89687-01-1, 12789:1-2 (2004).
13. **F. Bobaru** and S.A. Silling, "Peridynamic 3D models of nanofiber networks and carbon nanotube-reinforced composites", in *Materials Processing and Design*: Proceedings of Numiform 2004, the 8th International Conference on Numerical Methods in Industrial Forming Processes, Columbus, Ohio, June 13-17, 2004. *American Institute of Physics*, Conference Proceedings 712, pp: 1565-1570 (2004).
14. **F. Bobaru** and S.A. Silling, "Modeling and simulation of nanofiber porous membranes and carbon nanotube-reinforced composites". The *2003 SIAM Conference on Mathematics for Industry: Challenges and Frontiers*, Toronto, Canada, October 13-15, pp: 30-31 (2003).
15. **F. Bobaru** and S. Rachakonda, "Numerical Optimal Shape Design of Natural Convection Cooled Fins: Accounting for the Thermal Boundary Layer", in *Proceedings of The 5th International Congress on Thermal Stresses and Related Topics, Volume 2*. Blacksburg, VA, USA, June 8-11, pp: WA-7-2-1 to WA-7-2-4 (2003).
16. **F. Bobaru** and S. Rachakonda, "Meshfree method for Shape Optimization of Cooling Fins: Shape Dependence on Conductivity Parameters", in *Papers of The Fifth World Congress On Structural And Multidisciplinary Optimization*, Lido di Jesolo-Venice, Italy, May 19-23, pp: 429-430 (2003).


## Invited talks or Keynote Presentations

1. **Iowa State University, Aerospace Engineering Department**. Title of talk: "*Is the glass half-full, half-empty, or …. cracked? The importance of nonlocal modeling of material degradation and failure*", March 5th, 2020.
2. **Mesoscale Science at Extreme Conditions Workshop organized by the Los Alamos National Lab**, Santa Fe, New Mexico. Title of talk: "*Peridynamic Models for Corrosion Damage: The Role of the Embrittled Layer in Stress Corrosion Cracking*", August 6-8, 2019.
3. **"Mathematical Challenges Associated with Failure of Brittle Materials" supported by the Army Research Office (ARO)**, at Johns Hopkins University in Baltimore, MD. Title of talk: "Brittle Fracture with Peridynamics", May 20-21, 2019.
4. **University of Bucharest, Faculty of Mathematics and Computer Science, Bucharest, Romania**. Mechanics of Deformable Media Seminar. Title of talk: "*Computing the evolution of corrosion damage*", June 29th, 2018.
5. **Department of Mechanical Engineering and Engineering Science, University of North Carolina at Charlotte**, Charlotte, NC, USA. Title of talk: "*What do cyclones and fracture have in common?*", March 1st, 2018.
6. **Keynote Presentation in the Computational Fracture Mechanics symposium** at the 14th U.S. National Congress on Computational Mechanics, Montreal, Canada. Title of talk: *"Thermally-Driven Oscillatory Cracks and Branching Cracks in Glass: A Peridynamic Analysis"*, July 19th, 2017.
7. **Faculty of Mathematics, University of Bucharest, Romania.** Title of talk: *"Cyclones" and Fracture: elastic vortices as drivers of instabilities in quenching-induced fracture of glass"*. June 15th, 2017.

8. **Mechanical and Aerospace Engineering, The Ohio State University.** Title of talk: *"Peridynamic Modeling of Corrosion Damage and Fracture"*, February 24th, 2017.

9. **Center for Mechanics of Solids, Structures and Materials**, Aerospace Engineering and Engineering Mechanics, **University of Texas at Austin**. Title of talk: *"Peridynamic Modeling of Corrosion Damage"*, November 10, 2015.

10. **Institute for Computational Engineering and Sciences (ICES) Seminar, University of Texas at Austin**. Title of talk: *"Why do Cracks Branch? and Reasons for Nonlocality in Dynamic Brittle Fracture"*, November 12, 2015.

11. **Department of Aerospace Engineering, University of Padova**, Italy. Title of talk: *"Modeling Corrosion Damage with Peridynamics"*, September 18th, 2015.

12. **Department of Aerospace Engineering, University of Padova**, Italy. Title of talk: *"Crack Branching, Impact, and Fragmentation: peridynamic studies of failure mechanisms in brittle materials"*, September 4th, 2015.

13. **Structural Mechanics TIM, organized by NAVAIR,** Falls Church, VA. Title of talk: *"Peridynamic models for corrosion damage"*, June 26th, 2015.

14. **USACM Workshop on Computational Aspects of Multiscale Materials Modeling**, May 13-16, 2014, Evanston, MI. Title of talk: *"Length-scales and nonlocality in modeling of material dynamic failure with peridynamics"*, May 13, 2014.

15. **Corning Inc, Corning, NY**. Title of talk: *Dynamic fracture and fragmentation in glass: making the case for peridynamic modeling*, June 3rd, 2013.

16. **NAVAIR, Patuxent River, Maryland**. Title of talk: *The case for peridynamic modeling for dynamic brittle fracture*, May 8th, 2013.

17. **University of Nebraska-Lincoln, NSF REU in the Mathematics Department**. Title of talk: *An overview of Peridynamics and its Applications,* June 21st, 2012.

18. **University of Southern California (USC),** Los Angeles, CA, The Sony Astani Department of Civil and Environmental Engineering, *The Problem of Dynamic Fracture in Brittle Materials and its Peridynamic Solution*, September 26th, 2011.

19. **University of California, Irvine (UCI)**, Irvine, CA, Department of Civil and Environmental Engineering, *Modeling and Simulation of Dynamic Brittle Fracture and Dynamics of Granular Matter*, May 23rd, 2011.

20. **University of California, Los Angeles (UCLA)**, Los Angeles, CA, Civil and Environmental Engineering. Title of talk: *Peridynamic Models and Predictions in Dynamic Brittle Fracture Problems*, May 3rd, 2011.

21. **California Institute of Technology (Caltech)**, Pasadena, CA, Mechanical and Civil Engineering. Title of talk: *Computing Complex Dynamic Phenomena: Dynamic Brittle Fracture, Heat Flow over Growing Cracks, and Enhanced Mixing of Granular Matter*, April 19th, 2011.

22. **University of Nebraska-Lincoln**, Department of Mechanical Engineering, Pierson Lectures, Title of talk: *Tough Problems in Dynamic Brittle Fracture and their Peridynamic Solutions*, September, 24th, 2010.

23. **Exxon Mobil Research and Engineering**, Corporate Strategic Research, Annandale, NJ. Title of talk: *The Dynamic Brittle Fracture Problem and the Peridynamic Solution*, January, 2010.

24. **Materials Design Users Group Meeting**, Washington D.C., Title of talk: *Peridynamics Predictions in Dynamic Fracture*, October 22nd, 2009.

25. **Army Research Laboratory**, Aberdeen Proving Grounds, Maryland. Title of talk: *The Dynamic Brittle Fracture Problem: The Peridynamic Solution*, September 16th, 2009.

26. **Sandia National Laboratories**, Albuquerque, New Mexico. Computer Science Research Institute. Title of the talk: *Nonlocality and length-scales in dynamic fracture: the peridynamic solution*, January 29th, 2009.

27. **University of Cambridge, Cavendish Laboratory**, Surfaces, Microstructure and Fracture Group, Shock and Fracture Group. Title of the talk: *Nonlocality and dynamic fracture: Are multiscale models the answer in dynamic fracture?* October, 21st, 2008.

28. **Louisiana State University**, Department of Mechanical Engineering. Title of the talk: *Computational Models for Materials and Structures under Extreme Conditions: the peridynamic theory*. September 1$^{th}$, 2007.
29. **Universitatea Politehnica Bucuresti**, Romania, Faculty of Applied Sciences, Department of Applied Mathematics. Title of talk: *Shape Optimization with a meshfree method for large shape changes*. June 7$^{th}$, 2007.
30. **Universidad Politecnica de Madrid**, Spain, Departamento de Ciencias de Materiales. Title of talk: *Peridynamic models for simulating failure of materials"*. May 28$^{th}$ 2007.
31. **Cornell University**. Department of Theoretical and Applied Mechanics. Title of talk: *"Applications of the Peridynamic Method to Multiscale Problems"*. April 2007.
32. **Ford Scientific Research Lab**. Dearborn, Michigan. Title of the talk: *"Dinosaur Cooling Plates and Optimal Design & Nanoscale Materials Simulations"*. July 2004.
33. **Boeing Research Lab**. Bellevue, Washington. Title of the talk: *"Dinosaur Cooling Plates and Optimal Shape, Material Design of FGMs, and Breaking Nanomaterials"*. July 2004.
34. **University of Nebraska-Lincoln.** PRISM Seminar Series on High Performance Computing and Networking. Title of the talk: *"Nanoscale Materials, Dinosaur Cooling Plates, Optimal Thermal Shields, and High Performance Computing"*. July 2004.
35. **Washington University in St. Louis**. Department of Mechanical and Aerospace Engineering. Title of talk: *"Computing the Optimal Shape and Material Composition"*. May 2004.
36. **Johns Hopkins University**. Department of Civil Engineering. Title of the talk: *"Optimal Shapes for Cooling Fins and Material Optimization of Functionally Graded Materials or Why Some Windows Cannot Have Sharp Corners?"*. March 2004.
37. **NASA Langley Research Center,** Hampton, VA, USA. The Analytical and Computational Methods Branch. Title of talk: *"Optimal Shapes for Cooling Fins and Material Optimization of Functionally Graded Materials"*. June 12th, 2003.
38. **University of Nebraska-Lincoln**, Department of Mechanical Engineering. Title of the talk: *"The Shape of Things or Why Some Windows Cannot Have Corners"*. February 21st, 2003.
39. **University of Illinois at Urbana-Champaign**, Department of Civil Engineering. Title of the talk: *"New solutions to Shape Optimization of Elastic and Thermoelastic Solids with the Element-free Galerkin Method"*. February 5th, 2001.
40. **University of Nebraska-Lincoln**, Department of Engineering Mechanics. Title of the talk: *"Shape Optimization of Elastic and Thermoelastic Materials Using a Meshless Method: Optimization of Shape and Structure of Functionally Graded Materials"*. May 2nd, 2000.

## Conference Presentations

1. Z. Chen, G. Zhang, Q. Le, Z. Xu, F. Bobaru, "Peridynamic Mechano-Chemical Modeling of Crack Initiation and Damage Evolution in Stress Corrosion Cracking", ASME International Mechanical Engineering Congress & Exposition. Phoenix, AZ. USA, Nov. 11-17, 2016.
2. Q. Le, F. Bobaru, "Peridynamic simulations of dynamic fracture across a material interface", ASME International Mechanical Engineering Congress & Exposition. Phoenix, AZ. USA, Nov. 11-17, 2016.
3. Y. Wang, F. Bobaru, "Intersonic Crack Propagation in Fiber-reinforced Composites by Peridynamics", ASME International Mechanical Engineering Congress & Exposition. Phoenix, AZ. USA, Nov. 11-17, 2016.
4. Z. Chen, S. Li, F. Wang, B. Cui, L. Tan, F. Bobaru, "Corrosion-induced Damage Layer in ZK60A Magnesium Alloy and its role in stress corrosion cracking", ASME International Mechanical Engineering Congress & Exposition. Phoenix, AZ. USA, Nov. 11-17, 2016.

5. Z. Chen, D. Bakenhus, F. Bobaru, "Advantages of using the constructive peridynamic kernel for elasticity", ASME International Mechanical Engineering Congress & Exposition. Phoenix, AZ. USA, Nov. 11-17, 2016.

6. F. Bobaru, Z.Chen, G. Zhang, "Peridynamic Modeling of Corrosion Damage", Corrosion 2016 (NACE International), March 6-10, 2016, Vancouver, BC, Canada.

7. F. Bobaru, Y. Wang, G. Zhang, Z. Xu, Z. Cheng, "Peridynamic modelling of dynamic fracture in FGMs and static and fatigue cracking", The 24th International Congress of Theoretical and Applied Mechanics, August 21-26, 2016, Montreal, Canada.

8. Z. G. Chen, G. Zhang and F. Bobaru, "Quantitative Prediction of 2D Pitting Corrosion by Peridynamic Corrosion Modeling", International Mechanical Engineering Congress & Exposition 2015, Nov. 13-19, 2015, Houston, TX, USA.

9. Z. G. Chen and F. Bobaru, "Peridynamic Modeling of Pitting Corrosion Damage", International Mechanical Engineering Congress & Exposition 2015, Nov. 13-19, 2015, Houston, TX, USA.

10. G. Zhang, Z. Xu, F. Bobaru. "Peridynamic modeling of mixed trans and intergranular fracture in silicon", International Mechanical Engineering Congress & Exposition. Houston, TX. USA, Nov. 13-19, 2015.

11. G. Zhang, Y. Wang, F. Bobaru. "Peridynamic modeling of mixed trans and intergranular fracture in polycrystalline ceramics", International Mechanical Engineering Congress & Exposition. Houston, TX. USA, Nov. 13-19, 2015.

12. Q. V. Le, F. Bobaru, "Correcting the surface/interface effect in peridynamics: applications to elasticity, fracture, and material interfaces", ASME 2015 International Mechanical Engineering, Houston, TX, Nov. 13-19, 2015.

13. Q. V. Le, F. Bobaru, "Surface and Interface Effects in Peridynamics", Nonlocal Models in Mathematics, Computation, Science, and Engineering Conference, Oak Ridge, TN, Oct. 26-28, 2015.

14. F. Bobaru, G. Zhang. "Transition from damage to localized cracks in dynamic fracture of polycrystalline ceramics", X-DMS 2015 eXtended Discretization MethodS, Ferrara, Italy, Sept. 9-11, 2015.

15. Q. V. Le, F. Bobaru, "Correcting the surface effect in peridynamics: applications to elasticity, fracture, and material interfaces", The 13th US National Congress on Computational Mechanics, San Diego, CA, July 26-30, 2015.

16. Y. Wang, G. Zhang, F. Bobaru, "Evaluation of peridynamic models for damage and failure in fiber reinforced composites", The 13th US National Congress on Computational Mechanics, San Diego, CA, July 26-30, 2015.

17. F. Bobaru and Z. Chen, "Corrosion damage modeling with peridynamics", the 2015 International Conference on Computational & Experimental Engineering and Sciences, Reno, Nevada, July 20-24, 2015.

18. F. Bobaru and G. Zhang. "Why do cracks branch? A peridynamic investigation", the 2015 International Conference on Computational & Experimental Engineering and Sciences, Reno, Nevada, July 20-24, 2015.

19. Z. G. Chen and F. Bobaru, "Peridynamic Modeling of Pitting Corrosion Damage", ASME 2015 Applied Mechanics and Materials Conference, McMAT2015, Seattle, WA, USA, June 29-July 1, 2015.

20. Z. G. Chen and F. Bobaru. "Peridynamic Modeling of Pitting Corrosion Damage, 13th US National Congress on Computational Mechanics, July 26-30, 2015, San Diego, CA, USA.

21. Z. Chen, F. Bobaru. "Peridynamic modeling of porous materials: wave propagation and mechanical properties", Engineering Mechanics Institute Conference, June 16-19, Stanford University, CA 2015.

22. Z. G. Chen and F. Bobaru Peridynamic modeling of pitting corrosion damage", Engineering Mechanics Institute Conference, June 16-19, Stanford University, CA 2015.

23. F. Bobaru, G. Zhang, On crack branching in dynamic brittle fracture: results from a peridynamic approach,

24. F. Bobaru, G. Zhang. "Peridynamic modeling of crack branching and impact on polycrystalline ceramics", CFRAC 2015, the Fourth International Conference on Computational Modeling of Fracture and Failure of Materials and Structures, Ecole Normale Supérieure de Cachan (Paris), France, June 3-5, 2015.

25. F. Bobaru, Y. Wang, G. Zhang. "Dynamic effects in unidirectional fiber-reinforced composites: a peridynamic analysis", CFRAC 2015, the Fourth International Conference on Computational Modeling of Fracture and Failure of Materials and Structures, Ecole Normale Supérieure de Cachan (Paris), France, June 3-5, 2015.

26. F. Bobaru, Y. Wang, J. Yu, J. Wright, C.F. Yen. "On the morphology of dynamic cracks surfaces and how to resolve them computationally", CFRAC 2015, the Fourth International Conference on Computational Modeling of Fracture and Failure of Materials and Structures, Ecole Normale Supérieure de Cachan (Paris), France, June 3-5, 2015.

27. Z. Chen, **F. Bobaru**, "Peridynamic Modeling of Corrosion Damage". The 17th US National Congress of Theoretical and Applied Mechanics, East Lansing, MI, June 15-20, 2014.

28. **F. Bobaru**, G. Zhang$_2$, "Reasons for Using Nonlocal/Peridynamic Models in Dynamic Brittle Fracture". The 17th US National Congress of Theoretical and Applied Mechanics, East Lansing, MI, June 15-20, 2014.

29. **F. Bobaru**, Y. Wang, J. Yu, C. Yen. "Prediction of roughness in transverse crack surfaces from impact on a glass-polycarbonate two-layer system". The 38th International Conference and Exposition on Advanced Ceramics and Composites, Daytona Beach, FL, Jan. 26-31, 2014.

30. **F. Bobaru**, Y. Wang, J. Yu, C-F. Yen, "Explaining How Cracks Initiate and Grow in a Thin Glass Plate from Impact: A Peridynamic Analysis". The 17th US National Congress of Theoretical and Applied Mechanics, East Lansing, MI, June 15-20, 2014.

31. **F. Bobaru,** Y. Wang, "Damage mechanisms and interactions in dynamically loaded fiber-reinforced composites: peridynamic solutions". The ASME 2013 International Mechanical Engineering Congress and Exposition, IMECE 2013, November 15-21, 2013, San Diego, CA, 2013.

32. **F. Bobaru**, Y. Wang, J. Yu, C-F Yen, "Damage Evolution From Impact On Brittle Multi-layered Targets Modeled With Peridynamics". The ASME 2013 International Mechanical Engineering Congress and Exposition, IMECE 2013, November 15-21, 2013, San Diego, CA, 2013.

33. **F. Bobaru**, "The Role of Nonlocality in Crack Branching in Brittle Materials". The 12th U.S. National Congress on Computational Mechanics USNCCM12, Raleigh, North Carolina, July 22-25, 2013.

34. **F. Bobaru**, Y. Wang, "Flux-Corrected Transport for Peridynamics". The 12th U.S. National Congress on Computational Mechanics USNCCM12, Raleigh, North Carolina, July 22-25, 2013.

35. Y. Wang, **F. Bobaru**, J. Yu, C-F Yen, "Evolution of Damage and Fragmentation Produced by Impact on a Thin Glass-Polycarbonate Plate System". The 12th U.S. National Congress on Computational Mechanics USNCCM12, Raleigh, North Carolina, July 22-25, 2013.

36. **F. Bobaru**, Y. Wang, "Intersonic Crack Propagation in Fiber-Reinforced Composites: a Peridynamic Approach", SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, PA, June 9-12, 2013.

37. **F. Bobaru**, "A Peridynamic Analysis of the Role of Elastic Waves in Controlling Dynamics Brittle Fracture", Workshop on Nonlocal Damage and Failure, San Antonio, Texas, March 11-12, 2013.

38. **F. Bobaru**, W. Hu, J. Yu, and C.F. Yen, "Brittle fracture evolution in projectile impact on a glass laminate: comparison between experiments and peridynamics results", the 37th International Conference & Exposition on Advanced Ceramics & Composites (ICACC 2013), January 27-February 1st, 2013, Daytona Beach, FL, 2013.

39. **F. Bobaru**, "Transient heat transfer in bimaterial solids and in bodies with growing cracks", The ASME 2012 International Mechanical Engineering Congress and Exposition, IMECE 2012, November 9-15, 2012, Houston, TX, 2012.

40. W. Hu, S.A. Silling, and **F. Bobaru**, "Computing The Peridynamic J-Integral", The ASME 2012 International Mechanical Engineering Congress and Exposition, IMECE 2012, November 9-15, 2012, Houston, TX, 2012.

41. **F. Bobaru**, W. Hu, "Peridynamic modeling of fracture and fragmentation from high-velocity impact on glass plates", The ASME 2012 International Mechanical Engineering Congress and Exposition, IMECE 2012, November 9-15, 2012, Houston, TX, 2012.

42. **F. Bobaru**, "A nonlocal gradient in nonlinear optimization", The ASME 2012 International Mechanical Engineering Congress and Exposition, IMECE 2012, November 9-15, 2012, Houston, TX, 2012.

43. W. Hu and **F. Bobaru**, "Peridynamic modeling of intersonic crack propagation in an asymmetrically loaded unidirectional composite", *International Workshop on Computational Mechanics of Materials IWCMM XXII*, September 24 - 26, 2012, Baltimore, MD.

44. W. Hu, J. Yu, C.F. Yen, **F. Bobaru**, "Experiments and peridynamic modeling of impact on a thin glass plate with a polycarbonate backing", *International Workshop on Computational Mechanics of Materials IWCMM XXII*, September 24 - 26, 2012, Baltimore, MD.

45. **F. Bobaru**, W. Hu, "Coarse-grained peridynamic model for high-strain rate dynamic behavior of glassy polymers", *International Workshop on Computational Mechanics of Materials IWCMM XXII*, September 24 - 26, 2012, Baltimore, MD.

46. **F. Bobaru** , "The Importance of the inner problem in computational models of dynamic brittle fracture and why peridynamics works", *The 2012 SIAM Annual Meeting*, July 9-13, 2012, Minneapolis, MN, 2012.

47. S.A. Silling, **F. Bobaru**, and W. Hu, "The Peridynamic J-integral", *The 2012 SIAM Annual Meeting*, July 9-13, 2012, Minneapolis, MN, 2012.

48. **F. Bobaru**, W. Hu, and Y.D. Ha, "Nonlocal models and dynamic fracture: the role of stress waves on crack branching", *The 10th World Congress on Computational Mechanics*, 8-13 July, 2012, Sao Paolo, Brazil, 2012.

49. **F. Bobaru**, Y.D. Ha, and W. Hu, "Peridynamic Modeling of Dynamic Brittle Fracture in a Multi-Layered Glass System", *Society for the Advancement of Material and Process Engineering SAMPE 2012*, May 21-24, 2012, Baltimore, MD, 2012.

50. **F. Bobaru** and Y.D. Ha, "High Velocity Impact Induced Dynamic Brittle Fracture and Damage in Multi-Layered Glass: A Peridynamic Approach", Proceedings of *the ASME 2011 International Mechanical Engineering Congress & Exposition IMECE 2011*, November 11-17, 2011, Denver, CO, IMECE2011-64682, 2011.

51. **F. Bobaru** and W. Hu, "Computing dynamic loading effects on fracture and ultimate failure of fiber-reinforced composites", Proceedings of *the ASME 2011 International Mechanical Engineering Congress & Exposition IMECE 2011*, November 11-17, 2011, Denver, CO, IMECE2011-64650, 2011.

52. **F. Bobaru** and M. Duangpanya, "Transient Heat Transfer in Bodies With Evolving Discontinuities: A Peridynamic Approach", Proceedings of *the ASME 2011 International Mechanical Engineering Congress & Exposition IMECE 2011*, November 11-17, 2011, Denver, CO, IMECE-64670, 2011.

53. Y.D. Ha and **F. Bobaru**, "Dynamic Brittle Fracture captured with Peridynamics", Proceedings of *the ASME 2011 International Mechanical Engineering Congress & Exposition IMECE 2011*, November 11-17, 2011, Denver, CO, IMECE2011-65515, 2011.

54. **F. Bobaru** and M. Duangpanya, "Peridynamic transient heat flow in bodies with evolving discontinuities", American Mathematical Society 2011 Fall Central Section Meeting, Lincoln, NE, October 14-16, 2011

55. **F. Bobaru** and M. Duangpanya, "A Peridynamic Formulation for Transient Heat Transfer in Bodies with Evolving Discontinuities", *The 11th U.S. National Congress on Computational Mechanics*, Minneapolis, MN, July 25-28, 2011.

56. Y.D. Ha, **F. Bobaru**, "Peridynamic Models for Dynamic Fracture and Damage in Multi-Layered Glass Induced by High Velocity Impact" *The 11th U.S. National Congress on Computational Mechanics*, Minneapolis, MN, July 25-28, 2011.

57. W. Hu,Y.D. Ha, **F. Bobaru**, "Dynamic Brittle Fracture and Damage in Unidirectional Fiber-Reinforced Composites with Peridynamics" *The 11th U.S. National Congress on Computational Mechanics*, Minneapolis, MN, July 25-28, 2011.

58. Y.D. Ha, S. Ganpule, **F. Bobaru**, R. Feng, "Fluid-Structure Interaction Models of Air Blast on Head", *The 47th Annual Technical Meeting of the Society of Engineering Science*, Iowa State University, IA, October 3-6, 2010.

59. W. Hu, **F. Bobaru**, Y.D. Ha, "Convergence and Scaling in Peridynamics for Modeling of Fiber-Reinforced Composites", *The 47th Annual Technical Meeting of the Society of Engineering Science*, Iowa State University, IA, October 3-6, 2010.

60. W. Hu, **F. Bobaru**, Y.D. Ha , "Modeling Dynamic Fracture and Damage in Unidirectional Fiber-Reinforced Composites with Peridynamics", *The 47th Annual Technical Meeting of the Society of Engineering Science*, Iowa State University, IA, October 3-6, 2010.

61. **F. Bobaru** and Y.D. Ha, "Nonlocal Models for Dynamic Fracture and Damage in Brittle Materials with Peridynamics" *The 47th Annual Technical Meeting of the Society of Engineering Science*, Iowa State University, IA, October 3-6, 2010.

62. A. Holmberg, N. Kleinschmit, R. Feng, Y.D. Ha, **F. Bobaru**, "Shock-Tube-Simulated Blast Wave Propagation and Interactions with Solid Structures ",*The 47th Annual Technical Meeting of the Society of Engineering Science*, Iowa State University, IA, October 3-6, 2010.

63. Y.D. Ha and **F. Bobaru**, "Crack Branching: Peridynamic Solutions for Dynamic Fracture Problems", Extended Abstract, *The 16th U.S. National Congress of Theoretical and Applied Mechanics,* State College, PA, June 27th-July 2nd, 2010.

64. W. Hu, **F. Bobaru**, and Y.D. Ha, "Convergence and Scaling in Peridynamics for Modeling of Fiber-Reinforced Composites", Extended Abstract, *The 16th U.S. National Congress of Theoretical and Applied Mechanics,* State College, PA, June 27th-July 2nd, 2010.

65. **F. Bobaru** and M. Duangpanya, "A Peridynamic Formulation for Thermal Transport", *The 16th U.S. National Congress of Theoretical and Applied Mechanics,* State College, PA, June 27th-July 2nd, 2010.

66. W. Hu, **F. Bobaru**, and Y.D. Ha, "Modeling Dynamic Fracture and Damage in Unidirectional Fiber-Reinforced Composites with Peridynamics", Extended Abstract, *The 16th U.S. National Congress of Theoretical and Applied Mechanics,* State College, PA, June 27th-July 2nd, 2010.

67. **F. Bobaru** and Y.D. Ha, "Peridynamic Models for Dynamic Fracture in Brittle Materials: Crack Branching Cascades and the Influence of the Loading Conditions", Extended Abstract, *The 16th U.S. National Congress of Theoretical and Applied Mechanics,* State College, PA, June 27th-July 2nd, 2010.

68. **F. Bobaru**, "The Dynamic Interaction between Granular Layers and Elastic Structures", keynote lecture, The *10th U.S. National Congress on Computational Mechanics*, Columbus, Ohio, July 16-19, 2009.

69. **F. Bobaru** and M. Duangpanya, "Peridynamics for transient heat transfer", The *10th U.S. National Congress on Computational Mechanics*, Columbus, Ohio, July 16-19, 2009.

70. Y.D. Ha **and F. Bobaru** "Adaptivity in peridynamics for crack propagation" The *10th U.S. National Congress on Computational Mechanics*, Columbus, Ohio, July 16-19, 2009.

71. W. Hu and **F. Bobaru**, "Modeling Fracture in Fiber-reinforced Composites with Peridynamics" The *10th U.S. National Congress on Computational Mechanics*, Columbus, Ohio, July 16-19, 2009.

72. **F. Bobaru**, L.F. Alves, "Crack branching with peridynamics", *The 2008 ASME International Mechanical Engineering Congress and Exposition*, Boston, MA, October 31-November 6, 2008.

73. **F. Bobaru**, Transient heat transfer with peridynamics, *The 2008 ASME International Mechanical Engineering Congress and Exposition*, Boston, MA, October 31-November 6, 2008.

74. **F. Bobaru**, M. Duangpanya, "Peridynamic Models for Heat Conduction and Thermoelastic Fracture", *The 45th Annual technical Meeting of the Society of Engineering Science*, Urbana-Champaign, IL, October 12-15, 2008.

75. **F. Bobaru**, L.F. Alves, "Predictive Peridynamic Models for Dynamic Fracture", *The 45th Annual technical Meeting of the Society of Engineering Science*, Urbana-Champaign, IL, October 12-15, 2008.

76. **F. Bobaru**, L.F. Alves, S.A. Silling, A. Askari, "Dynamic Crack Branching and Adaptive Refinement in Peridynamics", *The 8th World Congress on Computational Mechanics WCCM8*, Venice, Italy, June 30-July 4, 2008.

77. **F. Bobaru**, K. Rattanadit, K. Promratana, and Turner, J.A., "Behavior Of Granular Layers In Bending", *The Inaugural International Conference of the Engineering Mechanics Institute, EM08*, Minneapolis, Minnesota, May 19-21, 2008.

78. **F. Bobaru,** L. Alves, S.A. Silling, and E. Askari, "Dynamic Crack Propagation And Crack Branching With Peridynamics", *The Inaugural International Conference of the Engineering Mechanics Institute, EM08*, Minneapolis, Minnesota, May 19-21, 2008.

79. **F. Bobaru**, M. Yang, L. Alves, S.A. Silling, and E. Askari, "Adaptivity, Convergence, and Multiscale Modeling with Peridynamics", *SIAM Conference on Mathematical Aspects of Materials Science*, Philadelphia, PA, May 11-14, 2008.

80. **F. Bobaru**, M. Yang, L. Alves, "Adaptivity, Convergence, and Multiscale Modeling with Peridynamics", *The 2007 ASME International Mechanical Engineering Congress and Exposition*, Seattle, WA, November 11-15, 2007.

81. **F. Bobaru**, W. Xie, "Impact and Spallation Modeling in Brittle Solids Using Peridynamics", *The 2007 ASME International Mechanical Engineering Congress and Exposition*, Seattle, WA, November 11-15, 2007.

82. **F. Bobaru**, K. Rattanadit, J.A. Turner, "Coupled DEM-FEM for Modeling Particle-Size Dependence in the Dynamics of Granular Layers on Vibrating Elastic Plates", *The 2007 ASME International Mechanical Engineering Congress and Exposition*, Seattle, WA, November 11-15, 2007.

83. J.A. Turner, E.L. Zamora, F. Bobaru, "Dissipation in Vibrating Granular Layers", *The 2007 ASME International Mechanical Engineering Congress and Exposition*, Seattle, WA, November 11-15, 2007.

84. **F. Bobaru**, M. Yang, L. Alves, S.A. Silling, E. Askari, "Convergence, Adaptive Refinement, and Multiscale Modeling for Peridynamics", *The 44th Annual Technical Meeting of the Society of Engineering Science*, College Station, Texas, October 21st -24th, 2007

85. **F. Bobaru**, "Adaptive refinement in peridynamics for multiscale material models", *The 6th Congress of Romanian Mathematicians*, Bucharest, Romania, June 28th - July 4th, 2007.

86. **F. Bobaru,** K. Rattanadit, and J. Turner, "Coupled DEM-FEM for Modeling Granular Layers on Vibrating Elastic Plates", *Second International Conference on Computational Methods for Couple Problems in Science and Engineering*, Ibiza, Spain, May 20th-24th 2007.

87. **F. Bobaru**, S.A. Silling, M. Yang, L.F. Alves, "Adaptivity and Multiscale Modeling with Peridynamics: Applications to High Velocity Penetration of Sands" *The 17th Army Solid Mechanics Conference*, Baltimore, MD, April 3rd -5th, 2007.

88. **F. Bobaru**, W. Xie[1], M. Yang[3], S.A. Silling, "Impact and Spallation Modeling in Brittle Solids using Peridynamics", *The 17th Army Solid Mechanics Conference*, Baltimore, MD, April 3rd -5th, 2007.

89. **F. Bobaru**, S.A. Silling, "Peridynamics Fracture of Polycrystalline Ceramics", *The 7th World Congress on Computational Mechanics*, Los Angeles, California, July 16-22, 2006.

90. **F. Bobaru**, K. Rattanadit, J. Turner, L. Yang, W. Kang, "DEM And Coupled DEM-FEM For Modeling The Dynamics Of Granular Media Interaction With Elastic Thin Plates" *The 7$^{th}$ World Congress on Computational Mechanics*, Los Angeles, California, July 16-22, 2006.

91. **F. Bobaru,** W. Kang, K. Rattanadit, J.A. Turner, L. Yang, "Numerical modeling for the resonant behavior of elastic plates loaded with granular layers", presented at the 15th U.S. National Congress on Theoretical and Applied Mechanics, Boulder, Colorado, June 25- 30, 2006.

92. J. A. Turner, W. Kang, **F. Bobaru**, K. Rattanadit, and L. Yang "Effect of Particle Size on the Vibration of Plates Loaded with Granular Material" abstract at the 15th U.S. National Congress on Theoretical and Applied Mechanics, Boulder, Colorado, June 25- 30, 2006.

93. **F. Bobaru**, S.A. Silling, "Increasing Toughness And Strength Of Continuous Nanofiber Networks", the 2005 *ASME International Mechanical Engineering Congress and Exposition*, Orlando, Florida, 5-11 November, 2005.

94. **F. Bobaru**, W. Xie, S.A. Silling, "Convergence and Wave Propagation in Peridynamic Models", *8th U.S. National Congress on Computational Mechanics*, Austin, Texas, July 25-27, 2005.

95. **F. Bobaru**, "Shape Optimization over a Fixed Grid using the Element-free Galerkin Method for Large Shape Changes", WCSMO6, The *6$^{th}$ World Congress on Structural and Multidisciplinary Optimization*, Rio de Janeiro, May 30$^{th}$- June 3$^{rd}$, 2005.

96. **F. Bobaru**, S.A. Silling, and H. Jiang$_2$, "Peridynamic fracture and damage modeling of membranes and nanofiber networks", *The XI International Conference on Fracture*, Turin, Italy, March 20-25, 2005.

97. S. A. Silling and **F. Bobaru**. "Mechanics of Peridynamic Membranes" in *Proceedings of the Society of Engineering Science 2004 Annual Meeting*, October 10-13, Lincoln, Nebraska.

98. **F. Bobaru**, H. Jiang, and S. A. Silling. "Dynamics and damage analysis of networks of randomly oriented nanofibers with the peridynamic method", in *Proceedings of the Society of Engineering Science 2004 Annual Meeting*, October 10-13, Lincoln, Nebraska.

99. **F. Bobaru** and H. Jiang, "Optimization of Functionally Graded materials with Temperature Dependent Properties. A Meshfree Solution". *The XXI International Congress of Theoretical and Applied Mechanics*, August 2004, Warsaw, Poland.

100. **F. Bobaru** and S.A. Silling, "Peridynamic 3D models of nanofiber networks and carbon nanotube-reinforced composites", at the *8th International Conference on Numerical Methods in Industrial Forming Processes*, Columbus, Ohio (2004).

101. **F. Bobaru** and H. Jiang, "Optimal Functionally Graded Materials for Thermal Shields and Medical Implants". In the *Proceedings of the 2004 Nebraska Academy of Sciences Annual Meeting*.

102. **F. Bobaru**, "Peridynamic Models of Nanofiber Networks", poster presented at the NSF-sponsored *USACM Workshop on Computational Nanomechanics of Materials*, April 2004.

103. **F. Bobaru** and H. Jiang, "Optimal Material Composition of Functionally Graded Materials via a Meshfree Approach". Presented at the *2003 ASME International Mechanical Engineering Congress and R&D Expo*, IMECE 2003, Washington D.C., November 15-21, 2003.

104. **F. Bobaru** and S. Silling, "Modeling and Simulation of Nanofiber Porous Membranes and Carbon Nanotube-reinforced Composites". Presented at the *2003 SIAM Conference on Mathematics for Industry: Challenges and Frontiers*, Toronto, Canada, October 13-15, 2003.

105. **F. Bobaru** and H. Jiang, "Meshfree Method in Optimal Design of Functionally Graded Materials". Presented at the *Seventh U.S. National Congress on Computational Mechanics*, Albuquerque, New Mexico, July 27-31, 2003.

106. **F. Bobaru** and S. Rachakonda, "Optimal shapes for natural convection cooled thermal fins: a meshfree approach to inverse optimal design". Presented at the *Second M.I.T. Conference on Computational Fluid and Solid Mechanics*, MIT campus, Cambridge, MA, USA, June 17 - 20, 2003.

107. **F. Bobaru** and S. Rachakonda, "Numerical Optimal Shape Design of Natural Convection Cooled Fins: Accounting for the Thermal Boundary Layer". *Presented at The 5th International Congress on Thermal Stresses and Related Topics*, Blacksburg, VA, USA, June 8-11, 2003.
108. **F. Bobaru** and S. Rachakonda, "Meshfree method with nodal integration in shape optimization of heat-transfer systems". *Presented at the Fifth World Congress On Structural And Multidisciplinary Optimization,* Lido di Jesolo-Venice, Italy, May 19-23, 2003.
109. **F. Bobaru**, "Shape design of thermal fins: a meshfree approach for varying convection parameters", *First International Conference on Design and Nature*, Udine, Italy, September 10-12, 2002.
110. **F. Bobaru**, "Optimal Shape Design for Thermal Problems with Meshfree Methods", The *Fifth World Congress on Computational Mechanics*, Vienna, Austria, July 7-12, 2002.
111. **F. Bobaru**, "Optimal shape design of thermal fins with variable convection", The *14th US National Congress of Theoretical & Applied Mechanics*, Blacksburg, Virginia, June 23-28, 2002.
112. **F. Bobaru**, "A mixed formulation for discontinuous strains in elastic bi-materials with the element-free Galerkin method", Symposium on Computational Mechanics of Sharp Fronts and Interfaces, *The Sixth US National Congress on Computational Mechanics*, Dearborn, Michigan, August 4-6, 2001.
113. **F. Bobaru** and S. Mukherjee, "Element-free Galerkin for Shape Optimization of Linear Thermoelastic Solids", Symposium on Meshfree Methods, *The Sixth U.S. National Congress on Computational Mechanics*, Dearborn, Michigan, 2001.
114. **F. Bobaru** and S. Mukherjee, "Meshless Approach to Shape Optimization of Linear Thermoelastic Solids". Presented at the 2000 *ASME International Congress and Exposition*, Orlando, Florida, November 5-10, 2000.
115. **F. Bobaru** and S. Mukherjee, "Sensitivity Analysis and Shape Optimization using the Element-Free Galerkin Method". Presented at the Symposium on Meshfree Methods, *The Fifth U.S. National Congress on Computational Mechanics*, University of Colorado, Boulder, CO, USA, August, 4-6, 1999.

## Service activities

- Editor of "Handbook of Peridynamic Modeling", Advances in Applied Mathematics, CRC Press/Taylor & Francis Group (2017).
- Symposium organizer for numerous IMECE, USACCM, SIAM congresses and conferences.
- Reviewer for over 40 journals

## Internally Funded Research Grants

1. PRISM graduate student fellowship. UNL Modeling and Simulation Priority Program, Computer Science Department. PI: **F. Bobaru (100%)**. Dates: 01/01/04-05/30/04. Title: "Large Scale Simulations for Analysis and Optimal Design of Nanomaterials and Advanced Composites". Total amount: $4,000.
2. Layman Award (UNL Office of Research). Dates: 07/01/03-06/30/04. PI: **F. Bobaru (100%)**. Amount awarded: $9,088. Title: *"Materials and Shape Optimization of Metal-Ceramic Functionally Graded Materials with Applications to Medical Implants"*.
3. Faculty Seed Grant. UNL Research Council seed grant. Dates: 01/01/03-06/30/04. PI: **F. Bobar**u (100%). Total amount: $10,000. Title: "Novel Methods for Computational Optimal Design of Materials and Structures".
4. Layman Award (UNL Office of Research). Dates: 05/30/01-06/01/02. PI: **F. Bobaru (100%)**. Total amount: $7,500. Title: *"A mixed formulation for treating discontinuous strains in elastic bimaterials with a meshless method"*.

# Externally Funded Research Grants

1. MDA-STTR: PI: Intelligent Automation, Inc. Academic partner: **F. Bobaru**. Bobaru amount: $15,500. Dates: 03/15/2016-03/14/2017.
2. ONR: PI: Ramesh Talreja (TAMU) (50%), co-PI: **F. Bobaru (50%)**. Title: Dates:01/01/2016-12/30/2018. Total amount: $518,521. Bobaru amount: $245,556.
3. ONR: PI: **F. Bobaru (75%),** CO-pi: l. Tan (25%). Title: Peridynamic modeling of corrosion damage. Dates: 03/01/2015-03/01/2018. Total amount: $595,000.
4. ARO. PI: **F. Bobaru (100%**). Dates: 05/15/2014-05/12/2016. Total amount: $255,663.
5. AFOSR MURI: Co-PI **F. Bobaru (100%)** with 5 others. Title: "MURI center for material failure prediction through peridynamics". Dates: 06/30/2014-06/30/2019. Total amount: $7.5 million, Bobaru amount: $1 million.
6. HPTi/ARL. PI: **F. Bobaru (100%)**. Title: *" Peridynamic Models of Polycrystalline Ceramics"*. Dates: 03/01/2014-02/29/2015. Total amount: $120,136.
7. Industrial Research Limited (New Zealand). UNL PI: **F. Bobaru** (100%). Title: *"Fast Physics-Based Fracture for Visual Effects"*. Dates: 01/01/2013-12/30/2014. Total amount: $ 52,329.
8. HPTi/ARL. PI: **F. Bobaru (70%),** Co-PI: M. Negahban. Title: *"Validation of Peridynamic Models of Glassy Polymer Networks"*. Dates: 10/06/2011-08/30/2012. Total amount: $173,136.
9. DOE - Sandia National Laboratories. PI: **F. Bobaru (100%)**. Title: *"Adaptivity in Peridynamics: crack propagation*. Dates: 01/01/11-12/31/11. Total amount: $10,398.
10. ARO. **PI: F. Bobaru (100%)**. Title: *"Predictive Models for Dynamic Brittle Fracture and Damage at High-velocity Impact in Multilayered Targets"*. Dates: 08/15/2010-08/14/2014. Total amount: $257,020.
11. DOE - Sandia National Laboratories. PI: **F. Bobaru (100%)**. Title: *"Adaptivity in Peridynamics: reducing the wave reflections at transition zones*. Dates: 01/01/10-12/31/10. Total amount: $25,000.
12. Boeing. PI: **F. Bobaru (100%).** Title: *"Adaptivity for fiber-reinforced composites in 2D peridynamics*". Dates: 07/01/08-06/30/09. Sponsor amount: $38,085.
13. DOE - Sandia National Laboratories. PI: **F. Bobaru (100%)**. Title: *"Adaptivity in Peridynamics*. Dates: 05/15/06-12/31/09. Total amount: $269,880.
14. ARO-UNL Center for Trauma Mechanics. PI: **F. Bobaru (100%).** Title: "Cellular Structural Modeling". Dates: 10/01/08-09/30/10. Total amount: $109,325.
15. ARL Blast Mitigation Program. PI: R. Feng. Co-PI: **F. Bobaru (50%).** Title: *"Dynamic Deformation and Failure of Polycrystalline AlON"*. Dates: 05/01/07-05/01/08. Total amount: $100,000.
16. ARL Blast Mitigation Program. PI: J. Turner. Co-PI: **F. Bobaru (50%).** Title*: "Modeling of granular materials"*. Dates: 05/01/07-05/01/08. Total amount: $100,000.
17. ARL Blast Mitigation Program. PI: J. Turner. Co-PI: **F. Bobaru (50%).** Title*: "Modeling of granular materials"*. Dates: 06/01/06-05/31/07. Total amount: $60,000.
18. ARL Blast Mitigation Program[4]. PI: J. Turner. Co-PIs: **F. Bobaru (50%)**, E Baesu. Title: *"Ultrasonic mine detection"*. Dates: 06/01/05-05/31/06. Total amount: $75,000.
19. ARL Blast Mitigation Program[4]. Type: External. PI: Y. Dzenis. Co-PIs: **F. Bobaru (15%)**, E Baesu. Title: *"Electrospinning of nanofibers"*. Dates: 06/01/05-05/31/06. Total amount: $150,000.
20. ARL Blast Mitigation Program. PI: **F. Bobaru (34%)**. Co-PIs: Y. Dzenis, E Baesu. Title: *"Mechanics of nanofiber networks"*. Dates: 06/01/04-05/31/05. Total amount: $90,000.
21. ARL Blast Mitigation Program. PI: J. Turner. Co-PIs: **F. Bobaru (33%)**, E Baesu. Title: *"Ultrasonic mine detection"*. Duration: 06/01/04-05/31/05. Sponsor amount: $75,000. Total amount: $75,000.

22. NASA-Epscor grant. PI: **F. Bobaru (100%)**. Title: *"Optimal Design of FGMs for Thermal Protective Shields and Biomedical Implants"*, Dates: 05/01/03-08/30/04. Sponsor Amount: $17,000. UNL cost share: $17,000. Total amount: $34,000.
23. DOE - Sandia National Laboratory summer research grant. PI: **F. Bobaru (100%)**. Title: *"Peridynamic models of complex materials"*. Dates: 05/09/05-05/26/05. Total amount: $15,000.
24. DOE - Sandia National Laboratory CSRI summer research fellowship. PI: **F. Bobaru (100%)**. Co-PI: S.A. Silling. Title: *"Fracture with Peridynamics"*. Dates: 07/31/02-08/01/04. Total amount: $45,000.

## PhD Students supervised

1. Javad Mehrmashhadi. Dissertation title: "*Peridynamic Models for the Influence of Microstructure and of Temperature in Dynamic and Quasi-Static Brittle Fracture*". May 2020. Fully supported as RA.
2. Shumin Li. Dissertation title: "*Diffusion-induced property modifications of magnesium alloy and aluminum*". Co-supervised with Dr. Li Tan. December 2016. Partially supported as RA.
3. Guanfeng Zhang. Dissertation title: "*Peridynamic Models for Fatigue and Fracture in Isotropic and in Polycrystalline Materials*". May 2017. Fully supported as RA.
4. Yenan Wang. Dissertation title: *"Peridynamic Studies of Interactions Between Stress Waves and Propagating Cracks in Brittle Solids"*, December 2015. Fully supported as RA.
5. Wenke Hu. Dissertation title: *"Peridynamic Models for Dynamic Brittle Fracture"* May 2012. Fully supported as RA.
6. Monchai Duangpanya. Dissertation title: *"A Peridynamic Formulation for Transient Heat Conduction in Bodies with Evolving Discontinuities"*. May 2011. Partially supported as RA.
7. Kitti Rattanadit. Dissertation title: *"Coupled DEM-FEM for Dynamic Analysis of Granular Systems in Bending"*. May 2010. Partially supported as RA.

## PhD students currently in progress

8. Siavash Jafarzadeh, Expected graduation date: August 2020.
9. Sina Niazi, expected graduation date: August 2020.
10. Jiangming Zhao, expected graduation date: December 2020.
11. Farzaneh Mousavi, expected graduation date: December 2020.
12. Longzhen Wang, expected graduation date: May 2021.

## Other PhD students directly supervised

13. Liwei Wu, Ph.D. student at Hohai University, China. Supported for 12-months as visiting scholar by the China Scholarship Council (2020).
14. Shijun Zhao. Ph.D student at Hohai University, China. Supported for 12-months as visiting scholar by the China Scholarship Council (2018).
15. Giulia Sarego. Ph.D. student at University of Padova, Italy. Supported by the European Union for a 6-month research experience at UNL (2015).
16. Han Jiang. Ph.D. candidate, August 2002-December 2004. Fully supported as RA.
17. Sompong Prachumchon. Ph.D. candidate, August 2007-August 2008.

## Master Students supervised

1. Sneha Akula. Thesis title: "Peridynamic Modeling of Dynamic Fracture in Bio-Inspired Structures for High Velocity Impacts", May 2018
2. Tejaswita Patil. Thesis title: "Effect of Shot Peening on Stress Corrosion Behavior of Biodegradable Magnesium WE43", May 2018.

3. Konlayut Promratana. Thesis title: "Granular Materials Behavior under Dynamic Excitations". December 2008.
4. Leonardo Frota Alves. Thesis title: "Adaptive Refinement for the Peridynamic Theory". August 2008.
5. Wei Xie. Thesis title: "Peridynamic flux-corrected transport algorithm for shock wave studies". August 2005.
6. Ravi Krishna Lakkaraju (co-supervisor Prof. S. Rohde, Mechanical Engineering, UNL). Thesis title: "Optimization of wear-resistant multilayer thin films using finite element analysis on stiff and compliant substrates". August 2005.
7. Srinivas Rachakonda. Thesis title: "Optimal shape design of thermal systems with meshfree methods over a fixed grid". December 2003.

## Non-thesis option Master students advised

8. Rohit Koppal. December 2004. Project title: "Optimal design of connector beam for cell-phone technology".
9. Jeremiah Meints. December 2015. Project title: "Fracture in Functionally Graded Materials"

## Post-doctoral Research Associates Supervised
1. Dr. M. Yang (2006-2007; now Associate Professor at North Dakota State University)
2. Dr. Y.D. Ha (2008-2010; now Associate Professor at Kusan Univ., Korea).
3. Dr. W. Hu (May-August 2012, now Senior Researcher at American Glass Research Inc., Pennsylvania).
4. Dr. Q.V. Le (2015-2016, now Senior Researcher at Siemens, Columbus, Ohio).
5. Dr. Y. Wang (2016, now Assistant Professor at Beijing University of Technology, China).
6. Dr. Z. Chen (2015-2017; now Professor at Huazhong Univ. of Science & Tech., China)
7. Dr. Z. Xu (2016; now Senior Researcher in Columbus, Ohio).

## Journal Editorships

1. Associate Editor: *Journal of Peridynamics and Nonlocal Modeling* (2019-present).

2. Member of Editorial Board: *International Journal of Composite Materials* (2012-present).

3. Guest Editor for Special Issue on "Peridynamics and Multiscale Modeling" in the *International Journal for Multiscale Computational Engineering*, Volume 9, Issue 6, 2011.

4. Guest Editor (with J.S. Chen and J.A. Turner) for Special Issue on "Advances in the Dynamics of Granular Materials" in the *Mechanics of Materials* journal, Volume 41, Issue 6, 2009.

## Leadership Positions in International and National Organizations

1. Vice-chair of CONCAM, the ASME Committee on Computing in Applied Mechanics (2019-2021).
2. Lead Organizer of symposium on "Corrosion Damage and Stress Corrosion Cracking: Experiments, Modeling, and Computations" (with Nik Chawla, Arizona State Univ., John Foster, UT Austin, and Ziguang Chen, UNL) organized at the International Mechanical Engineering Congress & Exposition 2015, Nov. 13-19, 2015, Houston, TX, USA.

3. Lead Organizer of symposium on *"Advances in Computational Modeling: a symposium in honor of Professor Subrata Mukherjee on the occasion of his receiving the ICCES Lifetime Achievement Medal and his 70th birthday"* (with Salil Kulkarni, IIT Bombay, and Glaucio Paulino, Georgia Tech) organized at the 2015 International Conference on Computational & Experimental Engineering and Sciences, Reno, Nevada, July 20-24, 2015.

4. Leading Organizer and Chair of the first "*Workshop on Nonlocal damage and Failure: Peridynamics and other Nonlocal Models*", sponsored by the US Association for Computational Mechanics, San Antonio, TX, March 11-12, 2013.

5. Organizer of the symposium on ""Advances in Nonlocal/Peridynamic Modeling: Symposium in Honor of Dr. Stewart A. Silling's 55th Birthday", organized at the *2012 International Mechanical Engineering Congress and Exposition*, Houston, Texas, November 9-15, 2012.

6. Main Organizer of the symposium on "Peridynamics and other Nonlocal Methods" at the *10th U.S. National Congress on Computational Mechanics*, Columbus, Ohio, July 16-19, 2009.

7. Main Organizer of the symposium on "Discrete and Continuum Models of Granular Materials, Powders, and Soils" (with J.S. Chen, UCLA, and J.A. Turner, UNL) at the *2007 International Mechanical Engineering Congress and Exposition,* Seattle, WA, November 11-16, 2007.

8. Main Organizer and chair of the symposium on "Advances In Computing The Dynamic Behavior Of Heterogeneous Materials" (with S. Ghosh, Ohio State University) at the *7th World Congress on Computational Mechanics*, Los Angeles, July 16-22, 2006.

9. Main Organizer and chair for symposium on "Computational Methods for Designing Micro and Nano Scale Systems" (with S. Mukherjee, Cornell University, and S.A. Silling, Sandia) at the *2005 ASME International Mechanical Engineering Congress & Exposition* Orlando, Florida, November 12-18, 2005.

10. Main Organizer and chair for symposium on "Advances in Computational Mechanics and Optimization: Symposium in honor of Prof. Subrata Mukherjee's 60th birthday" (with A. Chandra, Iowa State University, and G.H. Paulino, UIUC) at the *8th U.S. National Congress on Computational Mechanics*, Austin, Texas, July 25-27th, 2005.

11. Main Organizer and chair of the Symposium on "Mechanics of Fiber Networks and Fibrous Materials" (with Y. Dzenis, UNL, and E. Baesu, UNL) at the *41st Annual Meeting of the Society of Engineering Science*, Lincoln, Nebraska, October 10-13, 2004.

12. Organizer (with J.A. Turner, UNL) of the Graduate Student competition symposium, at the *41st Annual Meeting of the Society of Engineering Science,* Lincoln, Nebraska, October 10-13, 2004.

13. Main Organizer and chair of the Symposium on "Modeling and Design of Functionally Graded Materials"(with J.N. Reddy, Texas A&M, and G.H. Paulino, UIUC) at the *2003 ASME International Congress and Exhibition*, Washington, D.C., November 15-21, 2003.

14. Chair of the "Thermal Analysis and Methods in Structures" session TA-10 at the *5th International Congress on Thermal Stresses and Related Topics*, Blacksburg, Virginia, June 8-11, 2003.

15. Chair of the "Recent Advances in Functionally Graded Materials" symposium session at the *Seventh U.S. National Congress on Computational Mechanics*, Albuquerque, New Mexico, July 28th-31st, 2003.


# News articles and articles in professional journals on our research work on corrosion damage (2015)

1. autotechnology.com
   https://autotechnology.com/news/2015/03/university-of-nebraska-develops-new-corrosion-testing-method/
2. China Gateway to Corrosion and Protection (in Chinese)

http://www.ecorr.org/news/kejichengguo/guoji/2015/0324/10448.html

3. Foreign Quality and Reliability information Network (in Chinese)

http://www.cetin.net.cn/qrms/show.php?contentid=1808

4. China Gateway to Corrosion and Protection (in Chinese)

http://www.ecorr.org/news/kejichengguo/guoji/2015/0604/10822.html 2

5. Journal of Failure Analysis and Prevention (2015) 15:493–495

http://link.springer.com/article/10.1007/s11668-015-9980-1

6. Materials Performance magazine

http://mp.epubxp.com/i/500787-may-2015/19

7. Tribology and Lubrication technology

http://onlinedigitalpublishing.com/publication/?i=257835&p=24&search_str=bobaru

8. North Platte Telegraph

http://www.nptelegraph.com/news/state/unl-researchers-study-the-whole-hole/article_8daa916a-7fba-53cb-a35a-e8e2a7a713f6.html

9. Omaha World-Herald

http://www.omaha.com/news/nebraska/unl-researchers-studying-corrosion-develop-a-way-to-measure-the/article_eca1e175-eeac-50e8-9be7-d74f9aea9b19.html

10. paintsquare.com

http://www.paintsquare.com/news/?fuseaction=view&id=13088

11. phys.org

http://phys.org/news/2015-03-captures-dynamics-corrosion.html

12. UNL News

http://newsroom.unl.edu/releases/2015/03/19/Model+captures+new+dynamics+of+corrosion+damage