Curriculum Vitae of Xiaowei Zeng

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Educational Background

D.Sc. *Mechanical and Aerospace Engineering, The George Washington University*
M.Sc. *Mechanical and Aerospace Engineering, The George Washington University*
M.Eng. *Mechanical Engineering, Huazhong University of Science and Technology*
B.Eng. *Mechanical Engineering, Huazhong University of Science and Technology*

Professional Appointments

[**2017** $\sim$] *Associate Professor, University of Texas at San Antonio, TX*
[**2011** $\sim$ **2017**] *Assistant Professor, University of Texas at San Antonio, TX*
[**2008** $\sim$ **2011**] *Postdoctoral Researcher, University of California at Berkeley, CA*

Research Interests

- *Computational BioMechanics (cell and bone mechanics)*
- *Computational Materials Science and Multiscale Methods*
- *Meshfree Method, Cohesive FEM, MD Simulation*
- *Multiscale Modeling and Simulation*
- *Nanomechanics and Microcontinuum Theory*

Referred Journal Publications

(Authors with __ are graduate students under my supervision)

1. M. Maghsoudi-Ganjeh, X.D. Wang* and **X. Zeng***, "Computational Investigation of the Effect of Water on the Nanomechanical Behavior of Bone", *Journal of the Mechanical Behavior of Biomedical Materials*, **101**, 103454:1-14, 2020

2. M. Maghsoudi-Ganjeh, L. Lin, X.D. Wang, X.Q. Wang and **X. Zeng***, "Computational Modeling of the Mechanical Behavior of 3D Hybrid Organic-inorganic Nanocomposites", *JOM*, **71**(11), 3951-3961,2019 (This paper is featured on the cover of JOM).

3. M. Maghsoudi-Ganjeh, L. Lin, X.D. Wang and **X. Zeng***, "Computational Investigation of Ultrastructural Behavior of Bone using a Cohesive Finite Element Approach", *Biomechanics and Modeling in Mechanobiology*, **18**(2), 463-478, 2019

4. M. Li, L. Lin, R. Guo, A. Bhalla, and **X. Zeng***, "Numerical Investigation of Nanoscale Electromechanical Response in a Ferroelectric Perovskite through an Atomistic Field Theory", *Ferroelectrics*, **540**, 124-137, 2019

5. J. Bai, L. Lin and **X. Zeng***, "Computational Study of Collective Cell Migration By Meshfree Method", *CMES-Computer Modeling in Engineering & Sciences*, **121**(3), 787-800, 2019

6. N. Liu, M. Becton, L. Zhang, H. Chen, **X. Zeng**, R. Pidaparti and X.Q. Wang, "A Coarse-Grained Model for Physical Behavior of Phosphorene Sheet", *Physical Chemistry Chemical Physics*, **21**, 1884-1894, 2019

7. M. Maghsoudi-Ganjeh, L. Lin, X.D. Wang and **X. Zeng***, "Bioinspired Design of Hybrid Composite Materials", *International Journal of Smart and Nano Materials*, **10**(1), 90-105, 2019

8. L. Lin and **X. Zeng***, "Numerical Investigation of the Role of Intercellular Interactions on Collective Epithelial Cell Migration", *Biomechanics and Modeling in Mechanobiology*, **17**(2), 439-448, 2018

9. M. Li, L. Lin, R. Guo, A. Bhalla, and **X. Zeng***, "Numerical Investigation of Size Effects on Mechanical Behaviors of Fe Nanoparticles through an Atomistic Field Theory", *Journal of Micromechanics and Molecular Physics*, **2**(3), 1750010:1-15, 2017

10. N. Liu, J. Hong, **X. Zeng**, R. Pidaparti and X.Q. Wang, "Fracture Mechanisms in Multilayer Phosphorene Assemblies: From Brittle to Ductile", *Physical Chemistry Chemical Physics*, **19**, 13083-13092, 2017

11. L. Lin and **X. Zeng***, "Computational Study of Cell Adhesion and Rolling in Flow Channel by Meshfree Method", *Computer Methods in Biomechanics and Biomedical Engineering*, **20**(8), 832-841, 2017

12. L. Lin, X.D. Wang, and **X. Zeng***, "Computational Modeling of Interfacial Behaviors in Nanocomposite Materials", *International Journal of Solids and Structures*, **115-116**, 43-52, 2017

13. L. Lin, J. Samuel, **X. Zeng***, X.D. Wang*, "Contribution of Organic Interface in Extrafibrillar Matrix to the Mechanical Behavior of Bone using a Novel Cohesive Finite Element Model", *Journal of the Mechanical Behavior of Biomedical Materials*, **65**, 224-235, 2017

14. L. Lin, X.D. Wang, and **X. Zeng***, "An Improved Interfacial Bonding Model for Material Interface Modeling", *Engineering Fracture Mechanics*, **169**, 276-291, 2017

15. L. Lin, X.Q. Wang, and **X. Zeng***, "The Role of Cohesive Zone Properties on Intergranular to Transgranular Fracture Transition in Polycrystalline Solids", *International Journal of Damage Mechanics*, **26**(3), 379-394, 2017

16. N. Liu, **X. Zeng**, R. Pidaparti and X.Q. Wang, "Tough and Strong Bioinspired Nanocomposites with Interfacial Cross-links", *Nanoscale*, **8**, 18531-18540, 2016

17. M. Becton, **X. Zeng**, and X.Q. Wang, "Mechanical Properties of the Boron Nitride Analog of Graphyne: Scaling Laws and Failure Patterns", *Advanced Engineering Materials*, **18**(8), 1444-1452, 2016

18. L. Lin and **X. Zeng***, "Computational Modeling and Simulation of Spall Fracture in Polycrystalline Solids by an Atomistic-Based Interfacial Zone Model", *Engineering Fracture Mechanics*, **142**, 50-63, 2015

19. M. Becton, **X. Zeng**, and X.Q. Wang, "Stability of Grain Boundaries and its Effects on the Mechanical Properties of Polycrystalline Graphene", *Carbon*, **86**, 338-349, 2015

20. L. Lin, X.Q. Wang and **X. Zeng***, "Geometrical Modeling of Cell Division and Cell Remodeling by Voronoi Tessellation Method", *CMES-Computer Modeling in Engineering & Sciences*, **98**(2), 203-220, 2014

21. L. Lin, R. Dhanawade, and **X. Zeng***, "Numerical Simulations of Dynamic Fracture Growth based on a Cohesive Zone Model with Microcracks", *ASCE-Journal of Nanomechanics and Micromechanics*, B4014003:1-10, 2014

22. **X. Zeng*** and S. Li, "A Biomechanical Cell Model by Liquid Crystal Elastomers", *ASCE-Journal of Engineering Mechanics*, **140**(4), 04013003:1-10, 2014

23. L. Zhang, **X. Zeng** and X. Wang, "Programmable Hydrogenation of Graphene for Novel Nanocages", *Scientific Reports*, **3**(3162), 2013; DOI: 10.1038/srep031622013.

24. **X. Zeng** and S. Li, "A Three Dimensional Soft Matter Cell Model for Mechanotransduction", *Soft Matter*, **8**, 5765-5776, 2012.

25. **X. Zeng** and S. Li, "Application of a Multiscale Cohesive Zone Method to Model Composite Materials", *International Journal for Multiscale Computational Engineering*, **10**(5), 391-405, 2012.

26. S. Li, **X. Zeng**, B. Ren, J. Qian, J. Zhang and A. Jha, "An Atomistic-Based Interface Zone Model for Crystalline Solids", *Computer Methods in Applied Mechanics and Engineering*, **229-232**, 87-109, 2012.

27. **X. Zeng*** and R. E. Cohen, "Thermo-Electromechanical Response of a Ferroelectric Perovskite from Molecular Dynamics Simulations", *Applied Physics Letters*, **99**, 142902, 2011.

28. **X. Zeng***, "Application of An Atomistic Field Theory to Nano/Micro Materials Modeling and Simulation", *CMES-Computer Modeling in Engineering & Sciences*, **74**(3), 183-201, 2011.

29. B. Ren, J. Qian, **X. Zeng**, A. K. Jha, S. Xiao and S. Li, "Recent Developments on Thermomechanical Simulations of Ductile Failure by Meshfree Method", *CMES-Computer Modeling in Engineering & Sciences*, **71**(3), 253-277, 2011.

30. **X. Zeng** and S. Li, "Modeling and Simulation of Substrate Elasticity Sensing in Stem Cells", *Computer Methods in Biomechanics and Biomedical Engineering*, **14**(5), 447-458, 2011.

31. **X. Zeng** and S. Li, "Multiscale Modeling and Simulation of Soft Adhesion and Contact of Stem Cells", *Journal of the Mechanical Behavior of Biomedical Materials*, **4**, 180-189, 2011.

32. **X. Zeng***, X. Wang, J. D. Lee and Y. Lei, "Multiscale Modeling of Nano/Micro Systems by a Multiscale Continuum Field Theory", *Computational Mechanics*, **47**, 205-216, 2011.

33. B. Ren, S. Li, J. Qian and **X. Zeng**, "Meshfree Simulations of Spall Fracture", *Computer Methods in Applied Mechanics and Engineering*, **200**, 797-811, 2011.

34. **X. Zeng** and S. Li, "A Multiscale Cohesive Zone Model and Simulations of Fractures", *Computer Methods in Applied Mechanics and Engineering*, **199**, 547-556, 2010.

35. Y. Lei, J. D. Lee and **X. Zeng**, "Response of a Rocksalt Crystal to Electromagnetic Wave Modeled by a Multiscale Field Theory", *Interaction and Multiscale Mechanics*, **1**(4), 467-476, 2008.

36. J. D. Lee, Y. Chen, **X. Zeng**, A. Eskandarian and M. Oskard, "Modeling and Simulation of Osteoporosis and Fracture of Trabecular Bone by Meshless Method", *International Journal of Engineering Science*, **45**(2-8), 329-338, 2007.

37. **X. Zeng**, Y. Chen and J. D. Lee, "Determining Material Constants in Nonlocal Micromorphic Theory through Phonon Dispersion Relations", *International Journal of Engineering Science*, **44**(18-19), 1334-1345, 2006.

Referred Book Chapter Publications

1. L. Lin and **X. Zeng***, "Computational Modeling and Simulation of Crack Growth in Polycrystalline Material with Defects by a Multiscale Interfacial Zone Model", in *Material Modelling: Applications, Challenges and Research*, A.F.C. Vieira (Ed.), Chapter **4**, 89-105, NOVA Science Publishers, Inc. New York, 2017, ISBN 978-1-53612-161-2 (Editor Invited).

2. **X. Zeng**, S. Li and B. Ren, "Soft Matter Modeling of Biological Cells", in *Advances in Soft Matter Mechanics*, S. Li and B. Sun (Eds.), Chapter **3**, 93-115, Springer, 2012, ISBN 978-3-642-19372-9.

3. **X. Zeng**, S. Li and S.S. Kohles, "Multiscale Biomechanical Modeling of Stem Cell-Extracellular Matrix Interactions", in *Advances in Cell Mechanics*, S. Li and B. Sun (Eds.), Chapter **2**, 27-54, Springer, 2011, ISBN 978-3-642-17589-3.

4. **X. Zeng** and S. Li, "Recent Developments on Concurrent Multiscale Simulations", in *Advances in Engineering Mechanics*, Q. Qin and B. Sun (Eds.), Volume 1, Chapter **1**, 1-55, NOVA Science Publishers, Inc. New York, 2011, ISBN 978-1-60876-901-8.

Teaching Experience

- *ME3813: Mechanics of Solids, UTSA*
- *ME3823: Machine Element Design, UTSA*
- *EGR2323: Applied Engineering Analysis, UTSA*
- *ME6413: Elasticity, UTSA*
- *ME5453: Advanced Strength of Materials, UTSA*
- *ME5413: Advanced Solid Mechanics, UTSA*