

PUBLICATIONS

(a) Books and Book Chapters (including full length, refereed papers published after conference presentations)

1. Boresi A. P., Chong K. P., and Lee, J. D., *Elasticity in Engineering Mechanics*, John Wiley & Sons, 2010.
2. Chen Y., Lee J. D. and Eskandarian A., *Meshless Methods in Solid Mechanics*, Springer, 2006.
3. Lee J. D., Chen Y., Wang, X., Extending Micromorphic Theory to Atomic Scale in *Mechanics of Generalized Continua* (edited by Gérard A. Maugin and Andrei V. Metrikine), Springer, 109-117, 2010
4. Chen Y., Lee J. D., Lei Y. and Xiong L., A Multiscale Field Theory: Nano/Micro Materials, in *Multiscale in Molecular and Continuum Mechanics: Interaction of Time and Size from Macro to Nano* (edited by G. C. Sih), Springer, 23-65, 2006.
5. Lee J. D., Chen Y., Eskandarian A., Lei Y., Zeng W. and Xiong L., “Multiscale material modeling: theories and applications”, *Multiscale Damage Related to Environment Assisted Cracking* (edited by G. C. Sih, S. T. Tu and Z. D. Wang), East Chinese University of Science and Technology Press, 301-310, 2005.
6. Chen Y. and Lee J. D., “Atomistic Formulation of A Microscopic Field Theory”, *Influence of Traditional Mathematics and Mechanics on Modern Science and Technology, Fundamentals and applications related to physics and engineering problems* (edited by G. C. Sih and C. P. Spyropoulos), 95-109, Eptalofos S.A., 2004
7. Lee J. D. and Chen Y., “Material forces in multiphase micromorphic continuum”, *Multiscale in Applied Science and Emerging Technology, Fundamentals and Applications in Mesomechanics* (edited by G. C. Sih, Th. Kermanidis and Sp. Pantelakis), University of Patras, 493-499, 2004.
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9. Chen Y., Eskandarian A., Oskard M. S. and Lee J. D., “Meshless analysis of crack propagation in multiphase micromorphic solids”, *World Congress of Computational Mechanics VII*, Tsinghua University Press & Springer-Verlag, 2004
10. Chen Y., Lee J. D. and Eskandarian A., “Finding material constants in micromorphic theory through phonon dispersion relations”, *Advance in Computational Engineering & Science* (edited by S.N. Atluri and D.W. Pepper), Tech Science Press 2002.
11. Chen Y., Lee J. D. and Eskandarian A., “Local and nonlocal meshless method of fracture mechanics”, *Advance in Computational Engineering & Science* (edited by S.N. Atluri and D.W. Pepper), Tech Science Press 2002.
12. Chen Y., Lee J. D. and Eskandarian A., “Meshless particle methods for nonlocal continua”, *Advances in Computational Engineering & Sciences* (edited by Atluri, Nishioka and Kikuchi), Tech Science Press, 2001.
13. Chen Y. and Lee J. D., “On micropolar field theory and its applications”, *Advances in Computational Engineering & Sciences* (edited by Atluri, Nishioka and Kikuchi), Tech Science Press, 2001.
14. Lee J. D. and Chen Y., “ A generalized friction law and its application on metal forming (rolling) process”, *Role of Mesomechanics for Development of Science and Technology*, (edited by G. G. Sih), Tsinghua University Press, 315-324, 2000.

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17. Lee J. D., "Finite element analysis of elastic-plastic solids at large strain", *Recent Advances in Engineering Sciences, Lecture Notes in Engineering 39* (edited by Koh and Speziale), 96-107, Springer-Verlag, Berlin, 1989.
18. Lee J. D., Albus J. S., Dagalakis N. G. and Tsai T., "Performance measures of a robotic micropositioner," *Robotics and Manufacturing* (edited by Jamshidi, Luh, Seraji and Starr), 1047-1056, ASME Press, 1988.
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26. Lee J. D. and Eringen A. C., Relations of two continuum theories of liquid crystals, in *Ordered Fluids and Liquid Crystals* (edited by Porter and Johnson), 315-330, American Chemical Society Publications, 1974.
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(b) Journal Papers

1. Wang X. and Lee J.D., "Concurrent atomistic/continuum simulation of thermo-mechanical coupling phenomena", *CMES: Computer Modeling in Engineering & Sciences*, in press.
2. Wang X. and Lee J.D., "Micromorphic theory: a gateway to nano world", *International journal of smart and nano materials*, in press.
3. Chen J. and Lee J.D., "Atomistic formulation of nano-piezoelectricity in barium titanate", *Nanoscience and Nanotechnology Letters*, **2**, 1-4, 2010

4. Wang X. and Lee J. D., "Modeling and Simulation of wave propagation based on a multiscale field theory", *ASME Journal of Applied Mechanics*, in press
5. Chen J. and Lee J. D., "Dynamic analysis of micro/nano bio/chemical biosensors", *Interaction and Multiscale Mechanics*, In press
6. Chen J., Wang X., Wang H., and Lee J. D., "Multiscale modeling of dynamic crack propagation", *Engineering Fracture Mechanics*, **77**, 736-743, 2010
7. Chen J. and Lee J. D., "Multiscale modeling of mixed fracture mode of MgO: sensitivity of different interatomic potentials", *Theoretical and Applied Fracture Mechanics*, **53**, 74-79, 2010
8. Deng Q., Lee J. D. and Chen Y., "An investigation of the microscopic mechanism of fracture and healing processes in cortical bone", *International Journal of Damage Mechanics*, **18**, 491-502, 2009.
9. Xiong L., Chen Y. and Lee J. D., "Investigation of mechanical properties of ZSM-5 based materials through MD simulations", *International Journal of Damage Mechanics*, **18**, 677-686, 2009.
10. Lee J. D., Wang X. and Chen Y., "Multiscale material modeling and its application to a dynamic crack propagation problem", *Theoretical and Applied Fracture Mechanics*, **51**, 33-40, 2009.
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14. Xiong L., Chen Y. and Lee J. D., "A continuum theory for modeling the dynamics of crystalline materials", *Journal of Nanoscience and Nanotechnology*, **9**, 1242-1245, 2009.
15. Lei Y., Lee J.D. and Zeng X., "Response of a rocksalt crystal to electromagnetic wave modeled by a multiscale field theory", *Interaction and Multiscale Mechanics*, **1(4)**, 467-476, 2008.
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17. Xiong L., Chen Y. and Lee J. D., "Simulation of dislocation nucleation and motion in single crystal magnesium oxide by a field theory", *Computational Material Science*, **42**, 168-177, 2008.
18. Lei Y., Chen Y. and Lee J. D., "Atomistic study of lattice structure of BiScO₃", *Computational Materials Science*, **41**, 242-246, 2007.
19. Xiong L., Chen Y. and Lee J. D., "Atomistic simulation of mechanical properties of diamond and silicon carbide by a field theory", *Modelling Simul. Mater. Sci. Eng.*, **15**, 535-551, 2007.
20. Lee J. D., Chen Y., Zeng, W., Eskandarian A. and Oskard M. S., "Modeling and simulation of osteoporosis and fracture of trabecular bone by meshless method", *International Journal of Engineering Science*, **45**, 329-338, 2007.
21. Xiong L., Chen Y. and Lee J. D., "Atomistic measure of the strength of MgO nanorods", *Theoretical and Applied Fracture Mechanics*, **46**, 202-208, 2007.
22. Chen Y. and Lee J. D., "Conservation laws at nano/micro scales", *Journal of Mechanics of Materials and Structures*, **1**, 681-704, 2006.
23. Chen Y., Lee J. D. and Xiong L., "Stresses and strains at nano/micro scales", *Journal of Mechanics of Materials and Structures*, **1**, 705-723, 2006.

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36. Chen Y., Lee J. D. and Eskandarian A., "Micropolar theory and its applications to mesoscopic and microscopic problems", *Computer Modeling in Engineering & Sciences*, **5**, 35-44, 2004.
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(c) Selected Conference Papers and Invited Presentations

1. Lee J. D. "Sensitivity of Interatomic Potentials in Multiscale Modeling of Fracture", Keynote Lecture at MESO2010, Taipei, Taiwan, June 2010
2. Chen J. and Lee J. D., "Fundamental Theory of Nanogenerators", APS April Meeting, Washington D.C., 2010
3. Lee J. D., "Micromorphic Theory and its Extension", Invited Talk at Workshop of Mesoscale Mechanics of Complex Materials, Vancouver, Canada, November, 2009
4. Lee J. D., "Numerical Implementation of a Multiple-Length/Time-Scale Theory for Concurrent Atomistic/Continuum Material System", 10th US Congress of Computational Mechanics, Columbus, Ohio, 2009
5. James Chen, X. Wang, H. Wang, and James D. Lee, "A multiscale modeling of fracture mechanics", US Congress of Computational Mechanics, Columbus, Ohio 2009
6. Lee J. D., "A Multiscale Concurrent Atomistic/Continuum Theory and its Numerical Implementation", ASCE-ASME-SES joint Conference, Blacksburg, VA, 2009
7. James Chen, X. Wang, H. Wang, and James D. Lee, "A multiscale modeling of dynamic crack propagation", ASCE-ASME-SES joint Conference, Blacksburg, VA 2009
8. Lee J. D. and Chen Y., "Extending micromorphic theory to atomic scale", Euromech Colloquium 510: Mechanics of Generalized Continua, Paris, France, May 13-16, 2009.
9. Lee J. D. and Chen Y., "Coupled atomic and continuum modeling and simulation", 2007 ASME International Mechanical Engineering Congress and Exposition, Seattle, WA, Nov. 11-15, 2007.
10. Lee J. D., Chen Y. and Deng Q., "Modeling and simulation of fracture in wood", 2007 ASME International Mechanical Engineering Congress and Exposition, Seattle, WA, Nov. 11-15, 2007.

11. Chen Y., Lee J. D. and Xiong L., "Atomistic formulation of a continuum field theory for atomistic multi-element systems", *9th US National Congress on Computational Mechanics*, San Francisco, CA, July 22-26, 2007.
12. Lee J. D. and Chen Y., "Multiscale computation of nano/micro materials", *9th US National Congress on Computational Mechanics*, San Francisco, CA, July 22-26, 2007.
13. Lee J. D., Chen Y., Xiong L., Lei Y., Zeng X. and Deng Q., "Theoretical development, finite element formulation and application of a multiscale continuum field theory", *Conference Proceedings of 18th Engineering Mechanics Division Conference of ASCE*, Blacksburg, VA, June 3-6, 2007.
14. Lei Y., Chen Y. and Lee J. D., "Study of structural stabilities of piezoelectric materials by atomic/continuum theory", *Conference Proceedings of 18th Engineering Mechanics Division Conference of ASCE*, Blacksburg, VA, June 3-6, 2007.
15. Xiong L., Chen Y. and Lee J., "Modeling and Simulation of Boron-doped nanocrystalline Silicon Carbide Thin Film by a Field Theory", *ChinaNano 2007*, Beijing China, 2007.
16. Xiong L., Chen Y. and Lee J., "MD Simulation of Mechanical Properties of Single-crystal and Ultrananocrystalline Diamond Thin Film", *ChinaNano 2007*, Beijing China, 2007.
17. Xiong L., Chen Y. and Lee J. D., "Molecular dynamics investigation of mechanical properties of ZSM-5 based materials", *15th U.S. National Congress on Theoretical and Applied Mechanics*, Colorado, June 25-30, 2006.
18. Lei Y., Lee J. D. and Chen Y., "Multiscale modeling study for high temperature piezocrystals", *15th U.S. National Congress on Theoretical and Applied Mechanics*, Colorado, June 25-30, 2006.
19. Zeng X., Lee J. D. and Chen Y., "Determining material constants in nonlocal micromorphic theory through phonon dispersion relations", *15th U.S. National Congress on Theoretical and Applied Mechanics*, Colorado, June 25-30, 2006.
20. Xiong L., Lee J. D., Chen Y. and Lei Y., "Multi-scale modeling of thermal-electromechanical response of piezoelectric thin film", *2006 APS March Meeting*, Baltimore, MD, 2006.
21. Chen Y. and Lee J. D., "A multiscale field theory for atomistic multi-element systems", *2006 APS March Meeting*, Baltimore, MD, 2006.
22. Chen Y. and Lee J. D., "Stresses and strains at nano/micro scales", *The 2005 Joint ASCE/ASME/SES Conference on Mechanics and Materials*, Baton Rouge, Louisiana, June 1-3, 2005.
23. Lee J. D. and Chen Y., "Material force and generalized J-integral for crack propagation in Micromorphic materials", *The 2005 Joint ASCE/ASME/SES Conference on Mechanics and Materials*, Baton Rouge, Louisiana, June 1-3, 2005.
24. Lei Y., Chen Y. and Lee J. D., "Interatomic force constants from ab initio calculation and empirical. interatomic potential", *2005 Workshop on Fundamental Physics of Ferroelectrics*, Williamsburg, Virginia, February 6-9, 2005.
25. Chen Y., Lee J. D. and Eskandarian A., "Atomistic formulation of a multiscale theory for nano/micro physics", *IMECE'03 2003 ASME International Mechanical Engineering Congress & Exposition*, Washington, D.C., November 16-21, 2003.
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28. Eskandarian A., Chen Y., Oskard M. S. and Lee J. D., "Meshless analyses of fracture, plasticity and impact ", Presented at (also published in the Proceedings of) *IMECE'03 2003 ASME International Mechanical Engineering Congress & Exposition*, Washington, D.C., November 16-21, 2003.
29. Chen Y., Lee J. D. and Eskandarian A., "Atomistic formulation of a multiscale theory for nano/micro physics", *40th Annual Conference of the Society of Engineering Science*, Ann Arbor, Michigan, October 2003.
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