Zhanli Liu

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EDUCATION BACKGROUND

B.S., Mechanics, Tsinghua University, China (2004) Ph.D., Mechanics, Tsinghua University, China (2009) *Advisor: Prof. Zhuo Zhuang*

WORK EXPERIENCE

2009.8-2012.8, Postdoctoral scholar, Mechanical engineering, Northwestern University, US Advisor: Prof. Ted Belytschko

2012.9-present, Associate professor, Engineering mechanics, Tsinghua University, China

RESEARCH FIELD

- ♦ Multi-scale modeling of crystal plastic deformation
- \diamond Advanced numerical methods in the simulation of fracture and damage in solids
- ♦ Micromechanics simulation of advanced composite materials

AWARDS&HONORS

National Excellent Doctoral Dissertation Award of P.R. China (2011) China 1000 young talent program (2013)

PUBLICATION LIST

Liu XM, Liu ZL, Zhang ZQ, Zhuang Z, Wei YG, Nanoindentation size effect interpreted by the dislocation nucleation mechanism. J.Comput.Theoret.Nanoscience, 10:714-718, 2013

Zhanli Liu, Jay Oswald, Ted Belytschko.XFEM modeling of ultrasonic wave propagation in polymer matrix particulate/fibrous composites, Wave Motion, 2013;50:389–401.

Liu XM, Liu ZL, Wei YG, Nanoscale friction behavior of the Ni-film/substrate system under scratching using MD simulation, Tribology Letters, 46:167-178,2012.

X.C. Zhao, **Z.L. Liu**, Z. Zhuang, X.M. Liu, Y. Gao. The study of grain boundary density effect on multi-grain thin film under tension. Computational Materials Science, 52(1):175-186, 2012

Z.L. Liu, T. Menouillard and T. Belytschko. An XFEM/Spectral element method for dynamic crack propagation. *International Journal of Fracture*, 169:183-198, 2011

Z.L. Liu, Z. Zhuang, X.M. Liu, X.C. Zhao, Z.H. Zhang. A dislocation dynamics based higher-order crystal plasticity model and applications on confined thin-film plasticity. *International Journal of Plasticity*, 27:201-216, 2011

Z.L. Liu, Z. Zhuang, X.M. Liu, X.C. Zhao, Y. Gao. Bauschinger and size effects in thin-film plasticity due to defect-energy of geometrical necessary dislocations. Acta Mechanica Sinica, 27(2):266-276, 2011

Z.L. Liu, X.M. Liu, Z. Zhuang, X.C. You. A multi-scale computational model of crystal plasticity at submicron-to-nanometer scales. International journal of plasticity 2009;25:1436.

Z.L. Liu, X.M. Liu, Z. Zhuang, X.C. You.Atypical three-stage-hardening mechanical behavior of Cu Single-Crystal micro-pillar. Scripta materialia 2009;60:594.

Z.L. Liu, X.C. You, Z. Zhuang A mesoscale investigation of strain rate effect on dynamic deformation of single-crystal copper. Int. J. Solids Struct. 2008;45: 3674.

Z. Zhuang, Y.N. Cui, Y. Gao, **Z.L. Liu**. Advances in discrete dislocation mechanism on submicro crystal atypical plasticity. Advances in Mechanics, 41(6): 647-667, 2011

Y. Gao, **Z.L. Liu**, X.C. Zhao, Z.H. Zhang, Z. Zhuang, X.C. You. Dislocation climb model based on coupling the diffusion theory of point defects with discrete dislocation dynamics. Acta Physica Sinica, 60(9):096103, 2011

Y. Gao, Z. Zhuang, **Z.L. Liu**, X.C. You, X.C. Zhao, Z.H. Zhang. Investigations of pipe-diffusion-based dislocation climb by discrete dislocation dynamics. International Journal of Plasticity, 27(7):1055-1071, 2011

Y. Gao, **Z.L. Liu**, X.C. You, Z. Zhuang. A hybrid multiscale computational framework of crystal plasticity at submicron scales. Computational Materials Science, 49:672-681, 2010

Y. Gao, Z. Zhuang, **Z.L. Liu**, X.C. Zhao, Z.H. Zhang. Characteristic sizes for exhaustion-hardening mechanism of compressed cu single-crystal micropillars. Chinese Physical Letters, 27: 086103, 2010