

CHENG JIPhone: (806)252-8342 Email: mail.chengji@gmail.com**EDUCATION**

Ph.D.	Mechanical Engineering	Texas Tech University, Lubbock, TX, U.S.	2012
B.S.	Mechanical Engineering	Beijing University of Chemical Technology, Beijing, China	2007

EXPERIENCE

Texas Tech University, Lubbock, TX

Graduate Researcher, Department of Mechanical Engineering 2008-2012

- Explored properties of energetic materials (potassium azide, barium azide, sodium azide) under hydrostatic compression and shear stress.
- Investigated shear-induced reconstructive phase transition of hexagonal boron nitride (hBN) to wurtzitic boron nitride (wBN).
- Studied the equation of state of hydrogen storage alloy (La-Mg-Ni) and aluminum carbide under compression.
- Maintained a con-focal micro-Raman spectroscopy facility.

Teaching Assistant, Department of Mechanical Engineering 2007-2012

- Engineering thermodynamics, heat transfer, introduction to design, etc.

Beijing University of Chemical Technology, Beijing, China

Undergraduate thesis, Department of Mechanical and Electrical Engineering 2007

- Studied the convective heat transfer enhancements by porous media using CFD methods.

Summer Intern, Design and Research Institute for Chemical Equipment 2006

- Modified the design of a double-screw extruder for high pressure processing of biomass.

SKILLS*Experimental* Conventional diamond anvil cell (DAC), shear DAC, synchrotron XRD, Raman spectroscopy, SEM, micro-Raman optics setup, mechanical design and machining.*Software* Fullprof, Peakfit, AutoCAD, Pro/E, PowderCell, Unitcell, Fit2D, GRETEP2, Origin, Fluent.**PROFESSIONAL ACTIVITIES**

- ◆ Honor Society of Phi Kappa Phi 2011
- ◆ American Society of Mechanical Engineering 2009 and 2011

PUBLICATIONS

1. **Cheng Ji**, Hongyang Zhu, Richard Zheng, Valery I. Levitas, Yanzhang Ma, "Shear-induced amorphization of sodium azide." Manuscript in preparation.
2. Hongyang Zhu, Fuxiang Zhang, **Cheng Ji**, Dongbin Hou, Jianzhe Wu, Trevor Hannon, Yanzhang Ma, "Pressure-induced series of phase transitions in sodium azide", submitted to *J. Phys. Chem. C*.
3. **Cheng Ji**, Valery I. Levitas, Hongyang Zhu, Jharna Chaudhuri, Archis Marathe, and Yanzhang Ma, "Shear-induced phase transition of nanocrystalline hexagonal boron nitride to wurtzitic structure at room temperature and lower pressure." *Proc. Natl. Acad. Sci.*, **109**, 19108 (2012).

4. **Cheng Ji**, Richard Zheng, Dongbin Hou, Hongyang Zhu, Jianzhe Wu, Ming-Chien Chyu, and Yanzhang Ma, "Pressure-induced phase transition in potassium azide up to 55 GPa." *J. Appl. Phys.*, **111**, 112613 (2012).
5. Dongbin Hou, Fuxiang Zhang, **Cheng Ji**, Trevor Hannon, Hongyang Zhu, Jianzhe Wu, and Yanzhang Ma, "Series of phase transitions in cesium azide under high pressure studied by in situ x-ray diffraction." *Phys. Rev. B*, **84**, 064127 (2011).
6. Dongbin Hou, Fuxiang Zhang, **Cheng Ji**, Trevor Hannon, Hongyang Zhu, Jianzhe Wu, Valery I. Levitas, and Yanzhang Ma, "Phase transition and structure of silver azide at high pressure." *J. Appl. Phys.*, **110**, 023524 (2011).
7. **Cheng Ji**, Fuxiang Zhang, Dongbin Hou, Hongyang Zhu, Jianzhe Wu, Ming-Chien Chyu, Valery I. Levitas and Yanzhang Ma, "High pressure X-ray diffraction study of potassium azide." *J. Phys. Chem. Solids*, **72**(6), 736 (2011).
8. Jianzhe Wu, Hongyang Zhu, Dongbin Hou, **Cheng Ji**, C.E. Whiteley, J.H. Edgar and Yanzhang Ma, "High pressure X-ray diffraction study on icosahedral boron arsenide (B₁₂As₂)." *J. Phys. Chem. Solids*, **72**(2), 144 (2011).
9. Fangming Xiao, **Cheng Ji**, Yanzhang Ma, Hongyang Zhu, Dongbin Hou and Min Zhu, "The compressibility of the La–Mg–Ni alloy system." *Int. J. Hydrogen Energy*, **35**(13), 6779-6783 (2010).
10. Hongyang Zhu, Yanzhang Ma, Haibin Yang, **Cheng Ji**, Dongbin Hou and Lingyun Guo, "Pressure induced phase transition of nanocrystalline and bulk maghemite (γ -Fe₂O₃) to hematite (α -Fe₂O₃)." *J. Phys. Chem. Solids*, **71**(8), 1183-1186, (2010).
11. Dongbin Hou, Yanzhang Ma, Jianguo Du, Jinyuan Yan, **Cheng Ji** and Hongyang Zhu, "High pressure X-ray diffraction study of ReS₂." *J. Phys. Chem. Solids*, **71**(11), 1571-1575 (2010).
12. Hongyang Zhu, Yanzhang Ma, Haibin Yang, Peifen Zhu, Jianguo Du, **Cheng Ji** and Dongbin Hou, "Ultrastable structure and luminescence properties of Y₂O₃ nanotubes." *Solid State Commun.* **150**(27-28), 1208-1212 (2010).
13. **Cheng Ji**, Yanzhang Ma, Ming-Chien Chyu, Russell Knudson, and Hongyang Zhu, "X-ray diffraction study of aluminum carbide powder to 50 GPa." *J. Appl. Phys.*, **106**, 083511 (2009).
14. Hongyang Zhu, Yanzhang Ma, Haibin Yang, Emre Selvi, Dongbin Hou, **Cheng Ji**, "Synthesis and compression of nanocrystalline silicon carbide." *J. Appl. Phys.*, **104**, 123516 (2008).