

Qian Xu

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Education

- 09/2012-06/2016 **B.Eng.** candidate in Materials Science and Engineering, Zhejiang University
GPA: 90.19/100 (Overall), 91.29/100 (Major); **Rank:** 1/107
Courses: Physical Chemistry, Crystallography, Thermodynamics of Materials, Transport Theory, Nanostructured Materials, Modern Materials Analysis Technology, Electrical & Electronic Engineering, Solid State Physics, Semiconductor Physics & Devices, Computational Materials Science, etc.
- 07/2015-09/2015 Cross-disciplinary Scholars in Science and Technology (CSST) Program, UCLA
GPA: 4.0/4.0

Research Experience

- 07/2015-09/2015 **Thermal properties of topological insulators (TIs)**, *Device Research Laboratory, UCLA*
Research Assistant, Advisor: Professor Kang L. Wang
- Conducted a comprehensive literature review on thermal properties of TIs and 2D materials
 - Assisted in growing (Bi,Sb)₂Te₃ films by molecular beam epitaxy (MBE), measuring grown films' thermal and electrical properties and characterizing the morphology and structure by atomic force microscope (AFM) and transmission electron microscope (TEM)
 - Simulated the dynamics of thin film growth and calculated lattice thermal conductivity of films grown in simulation on the Large-scale Atomic/Molecular Massively Parallel Simulator (LAMMPS)
 - Investigated TE effects in TIs and main factors of thermoelectric (TE) properties by analyzing results from experiments and simulations
- 01/2015-06/2015 **Effects of stacking fault energy (SFE) on mechanical properties and deformation mechanism of Cu–Al alloys**, *Key Laboratory of Advanced Metals, Zhejiang University*
Independent Research, Advisor: Associate Professor Jiabin Liu
- Established correlations between SFE and mechanical properties including strength and ductility by TEM observation and tensile tests of self-prepared Cu-Al alloys samples with different SFEs
 - Investigated the dynamics of defects by in-situ elongation experiments
 - Proposed possible deformation mechanism of Cu-Al alloys
- 12/2014-Present **Molecular dynamics study of structure and devitrification mechanism of Ca/Sr/BaF₂-Al₂O₃-SiO₂ glass system**, *Inorganic Nonmetallic Materials Institute, Zhejiang University*
Independent Research, Advisor: Associate Professor Xvsheng Qiao
- Prepared glasses with designed compositions and characterized structure and devitrification properties by X-ray diffraction (XRD), differential thermal analysis (DTA), TEM, etc.
 - Simulated glass-forming process of glass with compositions corresponding to experiments using DL_POLY, analyzed the energy change, bond angle distributions and other structural features in the

simulated models and optimized the simulations to fit expected results

- Established correlations relating composition and structure to the stability of Ca/Sr/BaF₂-Al₂O₃-SiO₂ glass system by analyzing the results from experiments and simulations

03/2014-06/2015 **Growth and study of thermal properties of thermoelectric nanomaterials with phase change behavior**, *Center of Electron Microscopy, Zhejiang University*

Research Assistant, Advisor: Professor Yong Wang

- Fabricated Ag₂Te and Cu_{2-x}Se nanostructures by chemical vapor deposition (CVD), hydrothermal method and focused ion beam (FIB)
- Characterized the nanostructures with scanning electron microscope (SEM), energy dispersive X-ray spectroscope (EDS) and TEM
- Observed the phase transition process of Cu_{2-x}Se during in-situ heating experiment
- Investigated mechanisms of the growth and phase transition of the nanomaterials from first-hand data

Honors & Awards

- Tang Lixin Scholarship, Tang Lixin Education Development Foundation (2015)
- Finalist of Chu Kochen Award (18 out of 6000), Zhejiang University (2015)
- CSST Fellowship & CSST Award for Outstanding Research and Presentation Skills, UCLA (2015)
- National Scholarship of China (top 2%), Ministry of Education of the People's Republic of China (2014 and 2015)
- National University Student Innovation Program of China Grant, Ministry of Education of the People's Republic of China (2014)
- First Class Scholarship for Outstanding Students & Outstanding Merits, Zhejiang University (2014 and 2015)
- Excellent Student Awards, Zhejiang University (2015, 2014 and 2013)
- First Prize in Zhejiang Physics Innovation Contest for Undergraduates, Zhejiang Physics Society (2013)
- Third Prize in 24th Chinese Chemistry Olympiad, Chinese Chemical Society (2011)

Publication

- Jun Gao, Ronghua Ma, Zhaojunjie, **Qian Xu**, Xvsheng Qiao, Jincheng Du, Xianping Fan. "Non-bridging oxygen dependent redox and spectroscopic properties of Cu species in phosphosilicate glasses." *Journal of Alloys and Compounds* accepted in Dec. 2015

Other Information

Experimental	CVD growth, hydrothermal growth, MBE growth, TEM, SEM, EDS, AFM, etc.
Scientific Software	Origin, CrystalMaker, Gatan Microscopy Suite, Accelrys Materials Studio, DL_POLY, LAMMPS
Programming	Visual C++, MATLAB
Language	Chinese (Native), English (Fluent), German (Elementary)