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Keng-Hua Lin

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EDUCATION

Purdue University, West Lafayette, IN, USA

09/2007-present

Doctor of Philosophy, School of Materials Engineering

Focus: Effect of Electron-phonon Interaction on Thermal Transports by Molecular Dynamics Simulations
Thermal Transports in SiGe Superlattice by Molecular Dynamics Simulations

Advisor: Dr. Alejandro Strachan

Average GPA: **3.9/4.0**

National Taiwan University (NTU), Taipei, Taiwan

Master of Engineering, Materials Science and Engineering (MSE)

09/2007-06/2009

Master thesis: Improvements on Mechanical Properties of TiNi-Based Shape Memory Alloys

Advisor: Dr. Shyi-Kaan Wu

Average GPA: **4.0/4.0** Rank: **2/58**

Bachelor of Engineering, Materials Science and Engineering (MSE)

09/2003-06/2007

Average GPA: **4.0/4.0** Rank: **6/56**

COMPUTATIONAL AND EXPERIMENTAL TECHNIQUES

Computational

-Molecular Simulation: LAMMPS

-Programming Language and Calculation Software: Python, C, Tcl, Matlab, Mathematica

Experimental

-Thermal Analysis: Differential Scanning Calorimetry (DSC)

-Mechanical Tests: Tensile Test, Micro-hardness Test

-Microstructural Analysis: Optical Microscope (OM), Scanning Electron Microscope (SEM), X-ray
Diffraction (XRD)

-Thermal-mechanical Treatment: Hot-rolling, Cold-rolling and Aging

RELATED EXPERIENCES

Research

Graduate Research Assistant of Dr. Alejandro Strachan

09/2007-present

Materials Engineering, Purdue University, IN, USA

-Conduct molecular dynamics (MD) simulations on hetero-epitaxial SiGe superlattice thin films and nanowires to investigate the thermal transport properties

-Develop a simulation tool on nanoHUB website for users to create various Si/Ge nanostructures and calculate the thermal properties by molecular dynamics (MD) simulations

-Conduct molecular dynamics (MD) simulations to manufacture polymethyl methacrylate (PMMA) films by various methods in order to understand the morphology and surfaces energy difference

Graduate Research Assistant of Dr. Shyi-Kaan Wu

09/2007-06/2009

Functional Materials Lab., National Taiwan University, Taiwan

-Performed different thermal-mechanical treatments on TiNi-based shape memory alloys to improve their shape memory effects and pseudoelasticity (supported by Taiwan National Science Council)

Undergraduate Research Fellow of Dr. Jer-Ren Yang

09/2005-06/2006

Phase Transformation Lab., National Taiwan University, Taiwan

- Manufactured microforming brass wires to understand the relationship between their microstructures and mechanical properties (supported by Taiwan National Science Council Undergraduate Research Project)

-Characterized the surface of Nb target after sputtering process to understand the origin of contamination (supported by Delta Electronics)

Teaching

Teaching Assistant for MSE230 (Structure and Properties of Materials) at Purdue University, IN

01/2012-05/2012

Teaching Assistant for MSE370 (Electrical, Optical and Magnetic Properties of Materials) at Purdue University, N

08/2010-12/2010

Working

Assistant of *Journal of Mechanics (SCI Journal)*

09/2005-07/2006

PUBLICATION

-Keng-Hua Lin and Alejandro Strachan, *Thermal Transport in SiGe Superlattice Thin Films and Nanowires: effects of specimen and periodic length*, (2012) [Submitted to PRB]

-Tsai-Jung Ho, Shyi-Kaan Wu and Keng-Hua Lin, *Two-Stage Martensitic Transformation in Thermal-Cycled $Ti_{40.5}Ni_{49.5}Hf_{10}$ Shape Memory Alloy*, Materials Transactions, 51 (2010) 679-684

CONFERENCE

-Keng-Hua Lin and Ravi Pramod Kumar Vedula, Exhibitor for *nanoHUB.org* in 2012 TMS Annual Meeting and Exhibition, Mar 2012, Orlando, FL

-Keng-Hua Lin and Alejandro Strachan, *Molecular Dynamics Simulations on Thermal Transport in Hetero-epitaxial Si/Ge Nanolaminates and Nanowires*, talk in 2011 MRS Spring Meeting and Exhibit, May 2011, San Francisco, CA

-Keng-Hua Lin, Sean Sullivan, Ya Zhou and Alejandro Strachan, *Thermal Transport in Si/Ge Nanostructured Materials*, poster and talk in 2010 Purdue Center for Predictive Materials Modeling and Simulation (PMMS), Aug. 2010, West Lafayette, IN

-Keng-Hua Lin, Shyi-Kaan Wu and Shih-Ting Lin, *Effects of Thermomechanical Treatments on Shape Memory Characteristics of $Ti_{49.3}Ni_{50.7}$ Shape Memory Alloy*, paper and poster in Material Research Society Taiwan Annual Meeting, Nov. 2009, Taipei, Taiwan

-T. J. Ho, S. K. Wu, K. H. Lin, *Thermal Cycling Effect on the Transformation Behavior of High Temperature $Ti_{40.5}Ni_{49.5}Hf_{10}$ Shape Memory Alloy*, paper and poster in Material Research Society Taiwan Annual Meeting, Nov. 2008, Taipei, Taiwan

-P. C. Chen, S. K. Wu, K. H. Lin, *The Effect of Thermal-Mechanical Treatment on Multi-Stage Phase Transformation of Ni-Rich TiNi-Based Shape Memory Alloy*, paper and poster in Material Research Society Taiwan Annual Meeting, Nov. 2008, Taipei, Taiwan

SIMULATION TOOL

Keng-Hua Lin, Sean Sullivan, Mathew Joseph Cherukara and Alejandro Strachan (2011), "nanoMATERIALS nanoscale heat transport," DOI: 10254/nanohub-r9950.1.

ADWARDS AND SCHOLARSIPS

Research Assistantship in Materials Engineering, Purdue University, IN

08/2009-present

Research Assistantship in Functional Materials Lab, National Taiwan University, Taiwan

08/2007-07/2009

Scholarship for Joining Applied Materials Taiwan Young Talent Camp

2008

Taiwan National Science Council Undergraduate Research Project Funding

2006

MEMBERSHIP

Member, Minerals, Metals and Materials Society (TMS)

Student Member, Materials Research Society (MRS)

Member, Phi Tau Phi Scholastic Honor Society