Qichen Song

http://kitchensong.github.io ✉ qcsong@mit.edu

Education

Massachusetts Institute of Technology (MIT) *2015.09-present*
Major: Mechanical Engineering
Degree: Master of Science
Overall GPA: **4.7/5.0**

Huazhong University of Science and Technology (HUST) *2011.09-2015.06*
Major: Thermal Energy and Power Engineering
Degree: Bachelor of Engineering
Overall GPA: **92.2/100** Overall Rank: **1/366**

Research Experience

Research on deep impurity level in thermoelectrics *2016.01-present*
Advisor: Prof. Gang Chen

- Find through modeling that, depending on the material type and temperature range of operation, different impurity levels (shallow or deep) will be desired to optimize the efficiency of a thermoelectric material

Research on coupling between different phonon modes in graphene *2014.09-2015.6*
Advisor: Prof. Nuo Yang, Dr. Meng An

- Built an model to manipulate in-plane/out-of-plane temperature gradient
- Investigated coupling between different phonon modes (TA, LA and ZA) and their contributions to thermal conductivity

Research on modulation of thermal conductivity in folded graphene *2013.11-2015.6*
Advisor: Prof. Nuo Yang

- Independently wrote FORTRAN code of nonequilibrium molecular dynamics
- Designed innovative structure to reduce the thermal conductivity significantly
- Obtained size-independent thermal conductivity that characterizes large-area folded graphene's thermal properties

Publications

M.D. Li, **Q.C. Song**, T.H. Liu, L. Meroueh, G.D. Mahan, M.S. Dresselhaus, G. Chen, 'Tailoring superconductivity with quantum dislocations', *Nano Lett.*, Article ASAP

Q.C. Song, J.W. Zhou, L. Meroueh, D. Broido, Z.F. Ren, G. Chen, 'The effect of shallow vs. deep level doping on the performance of thermoelectric materials', *Appl. Phys. Lett.*, 2016, 109, 263902.

M. An, **Q.C. Song**, X.X. Yu, Z.L. Jin, D.K. Ma, B.L. Huang, N. Yang, 'Generalized two-temperature model for coupled phonons', *arXiv*, 2016, 1702.05237.

Q.C. Song, M. An, X.D. Chen, Z. Peng, J.F. Zang, N. Yang, 'The adjustable thermal resistor by reversibly folding a graphene sheet', *Nanoscale*, 2016, 8, 14943-14949.

Conference Presentation

Q.C. Song, T.H. Liu, J.W. Zhou, G. Chen, Ab-initio study of electron transport in lead telluride at APS March Meeting 2017, Session B34.00012 at New Orleans, LA, Mar. 13, 2017.

Honors and Awards

Warren M. Rohsenow Fellowship *2015-2016*
Awarded by Department of Mechanical Engineering, MIT

National Scholarship (Three times) *2012,2013,2014*
Top 1% among all competitors, awarded by Ministry of Education of PRC

Outstanding Student of Huazhong Univ. of Sci. & Tech. *2012-2014*
Top 1% among all 2nd & 3rd year students, one of the top honor for undergraduates

Excellent Award in the 3rd National Water Resource Innovation Design Competition *2013.07*

Computer Skills

FORTRAN90(MPI), C++, Python, MATLAB/Simulink, LaTeX