Changyu Meng

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Educational Background

Institute of Mechanics, Chinese Academy of Sciences (University of Chinese Academy of Sciences, UCAS), Beijing, China.

- Master of Engineering Mechanics, 2016/09 – 2019/06 (expected), **GPA: 3.38/4.0**
- *Core courses:* Elastoplastic Mechanics; Physical Chemistry of Solid-State Surface; Kinetics of Chemical Reaction; Density Functional Theory and Applications; Viscous Flow etc.

Wuhan University of Technology (WUT), Hubei, China.

- Bachelor of Engineering in Naval Architecture & Ocean Engineering, 2012/09 – 2016/06, **GPA[1]: 3.64/4.0 (10/212)**
- *Core courses:* Engineering Material; Materials Mechanics; Theoretical Mechanics etc.

Research Interests

Currently: Micro failure mechanism of interface systems; Molecular simulations; Polymer physics.

In future: Thermodynamics and statistical physics in polymer/soft matter; Developing cross-scale methods to deeply understand the polymer systems; Finding interesting phenomena of functional polymers through experiments.

Research Experiences

Multi-Scale Study on Dynamic Mechanical Behavior of Polymer/Metal Interface, participated, Natural Science Foundation of China, 2017/01 – 2020/12 *(main project during the graduate period).*

- Size-dependence of Cu/Polyethylene/Cu sandwich structures; To develop multiscale frameworks.
- Proficiently utilized LAMMPS, Moltemplate, etc. to accomplish sophisticated simulation tasks.
- Developed useful tools using C and Python to: extract useful information from output files of molecular simulations; build macromolecular models; draw vivid pictures.

Micro-Mesoscopic Simulation Study on the Dynamic Mechanical Behavior and the Interfacial Microstructure Evolution of the Polyurethane/Heterogeneous Materials System *(proposal proposed but no funding received yet).*

- To adjust and analyze the microstructure of PU/heterogeneous systems to practical applications.
- Systematically collected the relating literatures and organized feasible research plans.

Study on Rheological Properties of Crude Oil/Water Two-Phase Emulsion *(a research project in my graduate course: "The Measuremental Principles and Techniques in Experiments of Mechanics").*

[1] For consistency, the GPA during the undergraduate period of study is also calculated using the UCAS 4.0 algorithm: 90-100=4.0, 85-89=3.7, 82-84=3.3, 78-81=3.0, 75-77=2.7, 71-74=2.3, 66-70=2.0, 62-65=1.7, 60-61=1.3, below 60=0.

- Prepared the emulsions and performed the rheological experiments.
- Operated the optical microscope to observe the microstructure of crude emulsions.
- Headed the research group and obtained a good score.

2017 Shanghai Graduate Summer School of Computer Simulation and Application in the Chemical Engineering Process, held by East China University of Science and Technology, 2017/07/19 – 2017/07/31 *(a seminar I attended about the molecular simulation theory and technology).*

- Performed DPD simulations for polymers using home-made C codes.
- Using FORTRAN to realize adsorption simulations by the Grand Canonical Monte Carlo method.

7th Mathematical Modeling Invitational Contest of Central China *(a mathematical modeling contest, the problem is about: "Calibration of acceleration instrument based on acoustic barrier").*

- Analyzed and simplified the signal processing problem.
- Realized smooth processing programs using MATLAB and its toolkits.

Publications

[1] **Changyu Meng**, Lijuan Liao*, Chenguang Huang (2018). Study on failure mechanism of Cu-polyethylene-Cu sandwich structure by molecular dynamics simulation. *Computational Materials Science*. 154: 315-324.

[2] Lijuan Liao*, **Changyu Meng**, Chenguang Huang (2018). Thermal decomposition behaviour of polyethylene in oxygen-free and low oxygen content circumstances by reactive molecular dynamic simulation. *Molecular Simulation*. 44(12): 954-964.

[3] Lijuan Liao*, Chenguang Huang, **Changyu Meng** (2018). Study on mechanical properties of polyethylene with chain branching in atomic scale by molecular dynamics simulation. *Molecular Simulation*. 44(12): 1016-1024.

[4] Lijuan Liao*, **Changyu Meng**, Chenguang Huang (2018). Molecular Dynamics Simulations on the Tensile Deformation and Failure of a Polyethylene/Copper Interface. *Proceedings of the ASME 2018 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*.

Honors and Awards

2012, Merit Student in Wuhan University of Technology (Top 17%).

2013, National Encouragement Scholarship in Wuhan University of Technology.

2014, First-Class Prize of School Scholarship in Wuhan University of Technology.

2014, Third-Class Prize in 7th Mathematical Modeling Invitational Contest of Central China.

2016, Outstanding Graduate in Wuhan University of Technology.

2017, Merit Student in University of Chinese Academy of Sciences.

Hobbies & Life Experiences

- ***Keen to read many kinds of literature genres*** (have studied *Chinese Language and Literature* as a minor

in Central China Normal University for over two years).

- ***Singing*** (attended the Choir of Wuhan University of Technology as a bass, and for a team we won the first prize in the 5th University Students Arts Festival in Hubei).
- ***Running*** **and** ***climbing mountains*** (have completed a half marathon before).
- **Playing the chromatic harmonica.**