Changyu Meng's Curriculum Vitae

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EDUCATIONAL BACKGROUND

- Institute of Mechanics, Chinese Academy of Sciences, Beijing, China — Sept. 2016 – present
  - M.E. in Engineering Mechanics, GPA: 3.38/4.0, National Scholarship
- Wuhan University of Technology (WHUT), Hubei, China — Sept. 2012 – Jun. 2016
  - B.E. in Naval Architecture & Ocean Engineering, GPA[1]: 3.63/4.0, Outstanding Graduate

RESEARCH INTERESTS

- Mechanical responses/failure mechanism of polymer interfaces
- Relationships of microstructure and macroscale performances of functional polymeric materials
- Thermodynamics and statistical physics in soft matter
- Multi-scale simulation methods
- Phase-separation and dynamic behavior of polymer systems

RESEARCH ACTIVITIES

- **Multi-scale Study on Dynamic Mechanical Behavior of Polymer/Metal Interface** 2015 -
  - Studied the crucial influence of dihedral angle on the failure of Cu/PE/Cu (CPC) interface
  - Quantitatively analyzed the bridging and entanglement effects of linear chains
  - Characterized the damage initiation and the failure mode using thermal/mechanical methods
  - Analyzed the contributions of loading rate and thickness to the system's overall failure process
  - Purposed a phase diagram indicting the failure mode of the CPC interface
- **Micro-Mesoscopic Simulation of the Polyurethane/Substrate Materials System** 2018 -
  - Aim to connect PU's brilliant macro properties to the behavior of its microstructure, especially the polymer in soft/hard segments' interfacial phase and near substrates
  - Systematically collected the relating literatures and purposed feasible research plans
  - Created molecular structures of PU's hard & soft segments (using *moltemplate*)
  - Reproduced the physical properties of PU's hard & soft phases respectively by MD simulations
  - Realized the IBI coarse-grain procedure for soft segments (PTMO) (using *VOTCA*)
- **Thermal Decomposition Behavior and Mechanical Properties of Polyethylene** 2017
  - Created molecular structures of long PE linear and branched chains (using *moltemplate*)
  - Collected the evolution of carbon atoms during reaction using own-written Python code
- **Study on Rheological Properties of Crude Oil/Water Two-phase Emulsion** 2016
  - Prepared the emulsions and performed the rheological experiments
  - Operated the optical microscope to observe the microstructure of crude emulsions

[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.

TECHNICAL SKILLS

- C, MATLAB, Python
- Molecular dynamics (LAMMPS, home-made codes)
- Linux/Windows, Bash shell
- Mathematical modeling
- Finite Element simulations
- SOLIDWORKS, AutoCAD

HONORS & AWARDS

- 2012, Merit Student in WHUT (Top 17%)
- 2013, National Encouragement Scholarship in WHUT
- 2014, First-Class Prize of School Scholarship in WHUT
- 2014, Third-Class Prize in 7th Mathematical Modeling Invitational Contest of Central China
- 2016, Outstanding Graduate in WHUT
- 2017, Merit Student in UCAS
- 2018, National Scholarship in UCAS

PUBLICATIONS

- **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.
- 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.
- 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.
- 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.*

HOBBIES

- Read a lot of books
- Sing pop songs (have attended the Choir of WHUT as an undergraduate)
- Running and climbing mountains (have completed a half marathon before)
- Play the chromatic harmonica