

# Curriculum Vitae

Chuliang Fu

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## Appointment

2023.9- Postdoctoral Associate at Quantum Measurement Group, MIT  
Advisor: Prof: Mingda Li

## Education

2023 PhD, Materials Science and Engineering  
University of Virginia (UVA) at Charlottesville, USA  
Advisor: Prof. Bi-Cheng Zhou  
Dissertation: A Novel Computational Thermodynamics Framework with Intrinsic Chemical Short-Range Order

2017 BS, Mathematics and Applied Mathematics  
Yunnan University (YNU) at Kunming, China  
Thesis: Elliptic Partial Differential Equations: *the Application of Calderón-Zygmund Lemma in Hölder Estimates*

## Fields of Interests

The spanned space of {disorder, correlation, transport, representation} in physical science, such as Glass and High-entropy materials, short-range order in physical metallurgy, transport with disorder, computational thermodynamics & kinetics for materials science, AI4Science in materials representation learning through the integrated applied mathematics framework with first-principles based modeling, data-driven method and algorithms.

## Research experience

2023.9: Postdoc at quantum measurement (QM) group at MIT

Advisor: Prof. Mingda Li

Theoretical and computational directions within QM group.

2018.8-2023.8 Computational Thermodynamics and Kinetics Group (CTKG)

Advisor: Prof. Bi-Cheng Zhou, Materials Science and Engineering at University of Virginia

Develop a novel cluster-based thermodynamic model with intrinsic chemical short-range order for CALPHAD method. This project is supported by [NSF Career Award](#), and is reported in [UVA news](#).

2022.7-2022.8: visiting graduate student at quantum measurement group at MIT

Advisor: Prof. Mingda Li

develop the theory for the solid matrix with the quantum dots based on the Green's function method of the quantum field theory.

## Publication

**Chu-Liang Fu**, and Bi-Cheng Zhou\* "A Novel Cluster Model with Intrinsic Chemical Short-Range Order for Computational Thermodynamics: part II vibrational and elastic contribution" to be submitted to Acta. Mater.

**Chu-Liang Fu**, and Bi-Cheng Zhou\* "A Novel Cluster Model with Intrinsic Chemical Short-Range Order for Computational Thermodynamics: part I configurational contribution" <https://arxiv.org/abs/2306.15384> to be submitted to Acta. Mater.

Kang Wang, Du Cheng, **Chu-Liang Fu**, and Bi-Cheng Zhou\*, "First-principles investigation of the phase stability and early stages of precipitation in Mg-Sn alloys" *Physical Review Materials* 4, 013606 (2020)

**Chu-Liang Fu**, Mingda Li\* "Oscillatory deviations from Matthiessen's rule due to interacting dislocations." *J. Phys. Condens Matter* 29, 325702 (2017)

## Teaching Experience

2020.01-2020.05 Teaching Assistant for undergraduate-level introduction to materials science MSE department of UVA

2019.08-2019.12 Teaching Assistant for graduate-level Thermodynamics MSE department of UVA

2017.03 Teaching Training of Mathematics Yunnan University Secondary School

Mentored Students:

Annika Szyniec (for NSF Career Award project supported undergraduate student) Undergraduate student at UVA MSE and CTKG

## Public Presentations

Oral: "A Cluster-Based Computational Thermodynamics Framework with Intrinsic Chemical Short-Range Order: Applications to Prototype Systems" @ACS Fall 2023, a substitute 15-minute talk given due to the original talk was canceled.

Poster: "A Cluster-Based Computational Thermodynamics Framework with Intrinsic Chemical

Short-Range Order: Applications to Prototype Systems” @Gorden Research Conference Physical Metallurgy 2023.

Poster: “A Cluster-Based Computational Thermodynamics Framework with Intrinsic Chemical Short-Range Order: Applications to Prototype Systems” @50th International Conference on Computer Coupling of Phase Diagrams and Thermochemistry 2023.

Poster: “First-principles calculations and thermodynamics modeling of the Ca-Zn system @The Minerals”, Metals & Materials Society Annual Meeting 2022.

### **Honors and Awards**

- 2023.06 FactSage Best Student Poster Award @50th International Conference on Computer Coupling of Phase Diagrams and Thermochemistry 2023
- 2023.02 STT (Stiftelsen för Tillämpad Termodynamik) scholarship from the Foundation for Applied Thermodynamics in Sweden
- 2021.06 IBM Quantum Challenge 2021 Achievement - Advanced
- 2016.06 20th Wu Dagan Scholarship of Yunnan University.