Enze Hou

ORCID: 0009-0002-4185-3838
Email: houenze21@gsceap.ac.cn
Phone: +86 13969187333

Website: sgenzo.github.io
GitHub: ○ SGENZO
Institute of Applied Physics and Computational
Mathematics, Huayuan Road, 100088 Beijing, China

Education

2021.9-present	**Ph.D. Candidate in Fundamental Mathematics**, Institute of Applied Physics and Computational Mathematics, China.
	Advisors: Prof. Han Wang, Prof. Wengu Chen.
2020.1-2020.7	**Exchange Student**, Georgia Institute of Technology, USA.
2017.9-2021.6	**B.S. in Mathematics and Applied Mathematics**, Taishan College, Shandong University, China.

Research Interests and Experience

My research focuses on machine learning methods for multi-scale modeling, especially in quantum many-body physics and ultrafast dynamics.

- Developed machine learning potentials to simulate dynamic mechanical response of materials under extreme conditions.
- Proposed a neural network framework for solving the time-dependent Schrödinger equation in real space.
- Familiar with deep learning techniques such as physics-informed neural networks (PINNs), graph neural networks (GNNs), and generative models.
- Familiar with quantum chemistry simulation methods, including traditional methods like Hartree-Fock (HF), Full Configuration Interaction (FCI), and machine learning based methods like FermiNet.
- Current research: machine learning modeling of ultrafast dynamics in quantum many-body systems.
- Broader interests: Monte Carlo methods, scientific computing, uncertainty quantification.

Publications and Preprints

2025	Enze, Hou, Yuzhi Liu, Lei Wang*, Han Wang* **A Global Spacetime Optimization Approach to the Real-Space Time-Dependent Schrödinger Equation** [Preprint] *arXiv preprint*. arXiv:2511.12983.
2025	Enze, Hou, Xiaoyang Wang, Han Wang* **Revealing the dynamic responses of Pb under shock loading based on DFT-accuracy machine learning potential** [Preprint] *arXiv preprint*. arXiv:2507.03456.
2025	Xiaoyang Wang, Enze, Hou, Han Wang* **A Machine Learning Potential Model for Simulating Dynamic Mechanical Response of Pb-Sn Alloy** [Published] *Chinese Journal of High Pressure Physics*. doi:10.11858/gywlxb.20251151.

Presentations

2025.8	**2025 Beijing-Tianjin-Hebei+ Computational Mathematics Academic Exchange Conference**. Jinan, China. Enze, Hou.

Awards and Honors

2023	Outstanding Graduate Student Cadre, IAPCM
2022	Outstanding Graduate Student, IAPCM

2018	First-Class Specialty Scholarship, Shandong University
2018	Outstanding Student Cadre, Shandong University

Skills

- Programming Languages: Python, C, MATLAB.
- Scientific Computing: Quantum chemistry packages (PySCF), Machine learning frameworks (PyTorch, JAX), DFT software (VASP, ABACUS), Visualization tools (OVITO).
- Computing Environment: Linux, Git, HPC clusters, Shell scripting.
- Tools: LaTeX, Markdown.
- Languages: Mandarin (native), Cantonese, English (fluent).