

Hoang Anh (Benjamin) NGUYEN

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RESEARCH INTERESTS

Computational modeling in Geophysics and Materials Science:

- Full waveform inversion, quantum programming
- Inverse problems, large-scale behavior of the Earth
- Atomistic simulations, properties of materials under extreme conditions

EDUCATION

Ph.D. of Geophysics <i>Major: Geophysics</i> Colorado School of Mines	Aug 2023 – Present Golden, CO, USA
Pre-Ph.D. of Earth Sciences <i>Major: Earth System Physics</i> International Centre for Theoretical Physics (ICTP) - UNESCO Thesis: Ambient noise Tomography beneath the Banda Arc	Sept 2022 – Sept 2023 Trieste, Italy
Master of Engineering Physics <i>Major: Computational Physics</i> Hanoi University of Science and Technology (HUST) Thesis: Structural Simulation of MgSiO ₃ under Compression	April 2021 – April 2023 Hanoi, Vietnam
Engineer of Engineering Physics <i>Major: Computational Physics</i> Talent Honours Program – HUST Thesis: Computational Modelling of Microstructure of Magnesium Silicate	Sept 2016 – April 2021 Hanoi, Vietnam

WORK AND RESEARCH EXPERIENCE

Research Assistant Department of Geophysics - Colorado School of Mines <ul style="list-style-type: none">• Viscoelastic full waveform inversion (FWI)• Seismic inversion with quantum computing	Aug 2023 – Present Advised by Prof. A. Tura
Research Assistant Earth System Physics - ICTP <ul style="list-style-type: none">• Ambient noise tomography	May 2023 – Sept 2023 Advised by Prof. A. Aoudia & Dr. D. Manu-Marfo
Research Assistant Department of Computational Physics - HUST <ul style="list-style-type: none">• Molecular dynamics simulation	July 2018 – July 2023 Advised by Assoc. Prof. V. H. Nguyen
R&D Intern Geophysics Division - Vietnam Petroleum Institute (VPI) <ul style="list-style-type: none">• 2D and 3D ray-tracing• High performance computing servers	Aug 2021 – Feb 2022 Advised by Dr. Q. M. Ta

ACADEMIC ACTIVITIES

Erasmus Master Exchange Program <i>Section: Physics of Complex Systems</i> Polytechnic University of Turin (POLITO)	Feb 2022 – July 2022 Torino, Italy
Student Scientific Research Conference of HUST Presentation: Study on Structure of Magnesium Silicate Material under Densification	May 2020 Hanoi, Vietnam
Vietnam Robot National Contest Team member of HUST	May 2019 Hanoi, Vietnam

HONORS AND AWARDS

Fully funded scholarship for pre-PhD program at ICTP

Scholarship for academic year 2022-2023

VEF 2.0 Program recommended candidate 2022

Who passed 2 interview/review rounds with leading Vietnamese academics, who are PhD from top U.S. graduate schools and U.S. professors. The [VEF 2.0 Program](#) is conducted by the Fellows and Scholars of the Vietnam Education Foundation (VEF) – an independent U.S. Federal Government agency created by the U.S. Congress

Fully funded scholarship for master program at HUST

Scholarship for academic year 2021-2023

Fully funded scholarship for master exchange program at POLITO

Scholarship for the spring semester of academic year 2022-2023

Certificate of Merit from School of Engineering Physics for undergraduate students

Excellent Student in Autumn Semester 2017, Spring Semester 2018, Autumn Semester 2018, Spring Semester 2019

Vietnam National Physics Olympiad 2018

Second Prize

Lawrence S.Ting Scholarship 2017 for undergraduate students

Scholarship for academic year 2018-2019

WORK & PUBLICATIONS

- **Hoang Anh Nguyen** and Ali Tura. Seismic Traveltime Inversion with Quantum Annealing. *Geophysical Research Letters*, (Under Review)
- Nguyen Van Hong and **Nguyen Hoang Anh**. Crystallization of Liquid SiO₂ under Compression: A Molecular Dynamics Simulation. *Pramana Journal of Physics*, (Accepted)
- **Nguyen Hoang Anh** and Nguyen Van Hong. Study the structure of MgSiO₃ system under compression by using ring statistics and Voronoi analysis. *Physica Scripta*, March, 2023, doi: [10.1088/1402-4896/acc5b7](https://doi.org/10.1088/1402-4896/acc5b7)
- Hong Nguyen Van, **Nguyen Hoang Anh**, Toshiaki Iitaka, Lan Thi Mai. Computer simulation of phosphate-silicate and calcium phosphate-silicate systems. *Physica Scripta*, May, 2023, doi: [10.1088/1402-4896/acd4fb](https://doi.org/10.1088/1402-4896/acd4fb)
- **Nguyen Hoang Anh**, Nguyen Hung Son and Nguyen Van Hong. Pressure-induced glassy networks of enstatite (MgSiO₃) and forsterite (Mg₂SiO₄), 2022. *VNU Journal of Science: Mathematics - Physics*, March, 2023, doi: [10.25073/2588-1124/vnumap.4767](https://doi.org/10.25073/2588-1124/vnumap.4767)
- The Hoang Ha Pham, Huy Hien Doan, Quang Minh Ta, Thi Lua Mai, and **Hoang Anh Nguyen**. Some results of seismic travel-time reflection tomography study. *Petrovietnam Journal*, 10:4 –16, Nov. 2021, doi: [10.47800/PVJ.2021.10-01](https://doi.org/10.47800/PVJ.2021.10-01)
- Nguyen Hung Son, **Nguyen Hoang Anh**, Pham Huu Kien, Toshiaki Iitaka, and Nguyen Van Hong. Topology of SiO_x -units and glassy network of magnesium silicate glass under densification: correlation between radial distribution function and bond angle distribution. *Modelling and Simulation in Materials Science and Engineering*, 28(6):065007, Jul. 2020, doi: [10.1088/1361-651X/ab9bb4](https://doi.org/10.1088/1361-651X/ab9bb4)
- Nguyen Hung Son and **Nguyen Hoang Anh**. Structural simulation of Mg₂SiO₄ under compression. *VNU Journal of Science: Mathematics - Physics*, 36(4), Nov. 2020, doi: [10.2138/am-2000-1015](https://doi.org/10.2138/am-2000-1015)