Exponent®
Engineering & Scientific Consulting

Leslie Insixiengmay, Ph.D.

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Professional Profile

Dr. Leslie Insixiengmay is a geologist and mineral physicist with applications in characterizing planetary material properties at high pressure and high temperature conditions. She has experience in geologic field mapping, geologic map preparation, and rock and mineral identification through optical and petrographic methods.

Prior to joining Exponent, Dr. Insixiengmay conducted research at the University of California, Los Angeles, where she received her Ph.D. (and M.S) in geology specializing in computational mineral physics. Her dissertation focused on atomic-scaled simulations of planetary materials through first-principles Density Functional Theory calculations using the Vienna ab initio Simulation Package (VASP), where she characterized the electronic structure, thermodynamic properties, and phase stability of Earth materials at extreme conditions. Her research included understanding the effects of water interacting with iron-bearing minerals, and the impacts of Earth's evolutionary history from the chemical reactions of the Earth's core and mantle materials.

During her Ph.D., she completed an internship at HRL Laboratories developing methods for the classification of mechanical properties for refractory-base alloys using machine learning. Dr. Insixiengmay has also participated in mineralogical research at the Natural History Museum of Los Angeles using experimental optical techniques such as X-ray Diffraction (XRD), X-ray Fluorescence (XRF), and Raman spectroscopy. Dr. Insixiengmay is proficient in data analytics and data visualization.

Academic Credentials & Professional Honors

Ph.D., Geology, University of California, Los Angeles (UCLA), 2024

M.S., Geology, University of California, Los Angeles (UCLA), 2020

B.S., Geological Sciences, University of Southern California, 2018

NASA Space Grant Fellowship, 2024

John W. West Research Award, 2023

UCLA Earth, Planetary, and Space Sciences Excellence in Teaching Award, 2020, 2022.

Teaching Assistant Consultant Educational Development Academy Fellowship, 2021

University of Southern California Undergraduate University Honors, 2018

University of Southern California Geological Sciences Departmental Honors, 2018

Sigma Gamma Epsilon W.A. Tarr Award, 2018

Philip P. Kirst and Colleen Kirst Endowed Scholarship, 2018

Southern California Earthquake Center (SCEC) Grant

Licenses and Certifications

FAA Part 107 Certified Commercial Drone Pilot

Professional Affiliations

American Geophysical Union

Publications

Insixiengmay, Leslie and Stixrude, Lars. Hydrogen Bond Symmetrization of High-Spin to Low-Spin Transition of □-FeOOH at the Pressure of the Earth's Lower Mantle. American Mineralogist 2023; 10.2138/am-2022-8839.

Presentations

Insixiengmay, Leslie and Stixrude, Lars. Complete Solubility of Rock and Iron at High Pressure and Temperature. Poster presentation, American Geophysical Union, San Francisco, CA, 2024.

Insixiengmay, Leslie and Stixrude, Lars. Hydrogen Bond Symmetrization of High-Spin to Low-Spin Transition of □-FeOOH at the Pressure of the Earth's Lower Mantle. Oral presentation, American Physical Society, Las Vegas, NV, 2023.

Insixiengmay, Leslie and Stixrude, Lars. Hydrogen Bond Symmetrization of High-Spin to Low-Spin Transition of □-FeOOH. Oral presentation, UCLA EPSS Seismology, Tectonics, and Earth's Interior Seminar, Los Angeles, CA, 2023.

Insixiengmay, Leslie and Stixrude, Lars. Earth's Early Magnetic Field Powered by Exsolution of MgO from Liquid Iron? Oral presentation, American Geophysical Union, New Orleans, LA, 2021.

Insixiengmay, Leslie and Stixrude, Lars. The Magnetic Spin Transition of Pyrite-structured FeOOH in the Earth's Lower Mantle. Oral presentation, UCLA EPSS Geochminar, Los Angeles, CA, 2021.

Insixiengmay, Leslie and Stixrude, Lars. Earth's Early Magnetic Field Powered by Exsolution of Silicates from Liquid Iron. Poster presentation, American Geophysical Union, Virtual, 2020.

Insixiengmay, Leslie and Stixrude, Lars. Earth's Early Magnetic Field Powered by Exsolution of Silicates from Liquid Iron. Oral presentation, UCLA EPSS Seismology, Tectonics, and Earth's Interior Seminar, Los Angeles, CA, 2020.

Insixiengmay, Leslie and Stixrude, Lars. High Pressure and Temperature ab initio Calculations on Pyrite-FeO2H in the Earth's Lower Mantle. Poster presentation, American Geophysical Union, San Francisco, CA, 2019.

Insixiengmay, Leslie and Stixrude, Lars. High Pressure ab initio Calculations of Pyrite-FeO2H in the Earth's Lower Mantle. Poster presentation, Goldschmidt, Barcelona, Spain. 2019.

Insixiengmay, Leslie and Stixrude, Lars. High Pressure ab initio Calculations of Pyrite-FeO2H in the Earth's Lower Mantle. Oral presentation, USC Lithospheric Dynamics Seminar, Los Angeles, CA, 2019.

V. Memeti, P.H. Alasino, S.R. Paterson, M.A. Larrovere, B.C. Ratschbacher, K. Ardill, Alex Lusk, Tarryn Cawood, Leslie Insixiengmay. Igneous Architecture at the top of the Famatinian arc, NW Argentina. Poster presentation, Geological Society of America. Seattle, WA, 2017.