

Vasilije V. Dobrosavljevic

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RESEARCH INTERESTS

Compositions and dynamics of core-mantle boundary heterogeneities; interdisciplinary approaches to the structure and evolution of terrestrial planets; high-pressure melting, elasticity, and phase relations of deep Earth materials; multi-technique experimental methods; synchrotron technique development

EDUCATION

California Institute of Technology (Caltech) Pasadena, CA	Ph.D. candidate (geophysics) Advisor: Jennifer M. Jackson	expected Summer 2022
	M.S. (geophysics, minor: environmental science)	2018
Yale University New Haven, CT	B.S. (physics, intensive) Advisor: Kanani K. M. Lee Thesis: <i>Melting behavior of pyroxenite in the lower mantle</i>	2016

PUBLICATIONS

- Dobrosavljevic, V. V., Zhang, D., Sturhahn, W., Zhao, J., Toellner, T. S., Chariton, S., Prakapenka, V. B., Pardo, O. S., Jackson, J. M. (2021). Melting and Phase Relations of Fe-Ni-Si Determined by a Multi-Technique Approach. (in revision for *EPSL*).
- Lai, V. H., Helmberger, D. V., Dobrosavljevic, V. V., Wu, W., Sun, D., Jackson, J. M., Gurnis, M. (2021) Strong ULVZ and Slab Interaction at the Northeastern Edge of the Pacific LLSVP Favors Plume Generation (in revision for *G³*).
- Pardo, O. S., Dobrosavljevic, V. V., Perez, T., Sturhahn, W., Liu, Z., Rossman, G. R., Jackson, J. M. (2021) X-ray Diffraction Reveals Two Structural Transitions in Szomolnokite. (submitted to *Am. Min.*).
- Dobrosavljevic, V. V., Sturhahn, W., Jackson, J. M. (2019) Evaluating the Role of Iron-Rich (Mg,Fe)O in Ultralow Velocity Zones. *Minerals*, 9 (12), 762, doi:10.3390/min9120762.
- Du, Z., Gu, T., Dobrosavljevic, V. V., Weir, S. T., Falabella, S., Lee, K. K. M. (2015) Using stepped anvils to make even insulation layers in laser-heated diamond-anvil cell samples. *Review of Scientific Instruments*, 86 (9), 095103, doi:10.1063/1.4929667.

SKILLS

Diamond anvil cell (DAC) preparation and sample recovery; laser heating experiments and optics alignments; powder x-ray diffraction (XRD); time-domain synchrotron Mössbauer spectroscopy (SMS); nuclear resonant inelastic x-ray scattering (NRIXS); focused ion beam (FIB) milling; scanning electron microscopy (SEM); electron microprobe analysis (EMPA); data analysis software development in MATLAB

CONFERENCE PRESENTATIONS

*talk ^undergraduate mentee

***Dobrosavljevic, V. V.**, Zhang, D., Sturhahn, W., Zhao, J., Toellner, T. S., Chariton, S., Prakapenka, V. B., Pardo, O. S., Jackson, J. M. (2021) A multi-technique approach for the high-pressure melting of Fe-Ni-Si. Annual Meeting, COMPRES, online.

***Dobrosavljevic, V. V.**, Zhang, D., Sturhahn, W., Zhao, J., Toellner, T. S., Chariton, S., Prakapenka, V. B., Pardo, O. S., Jackson, J. M. (2021) A multi-technique approach for the high-pressure melting of Fe-Ni-Si. Conference on Science at Extreme Conditions, online.

***Dobrosavljevic, V. V.**, Zhang, D., Sturhahn, W., Zhao, J., Toellner, T. S., Chariton, S., Prakapenka, V. B., Jackson, J. M. (2020) High-pressure melting of Fe-Ni-Si: Insights from complementary experimental approaches. Fall Meeting, AGU, online.

*Pardo, O., **Dobrosavljevic, V. V.**, Perez, T., Sturhahn, W., Jackson, J. M. (2020) High-Pressure Behavior of an Iron-Bearing Mineral Relevant to Icy, Sulfate-Rich Worlds. Fall Meeting, AGU, online.

***Dobrosavljevic, V. V.**, Sturhahn, W., Jackson, J. M. (2020) Investigating the Compositions and Characteristics of Ultralow Velocity Zones. Annual Meeting, COMPRES, online.

***Dobrosavljevic, V. V.**, ^Zhou, C., Li, C., Sturhahn, W., Jackson, J. M. (2019) Quantitative Evaluation of Compositional Origins of Ultralow Velocity Zones. Fall Meeting, AGU, San Francisco, CA.

Pardo, O., **Dobrosavljevic, V. V.**, Perez, T., Sturhahn, W., Toellner, T. S., Jackson, J. M. (2019) Experimentally Probing the High Pressure Behavior of an Iron-bearing Hydrated Sulfate, Szomolnokite. Fall Meeting, AGU, San Francisco, CA.

*Lee, K. K. M., Creasy, N., Girard, J., **Dobrosavljevic, V. V.**, Gu, T., McCammon, C. A., Li, M. (2019) Mapping mantle heterogeneities through redox state. Fall Meeting, AGU, San Francisco, CA.

Dobrosavljevic, V. V., Jackson, J. M., Sturhahn, W. (2019) Evaluating the Role of Iron-Rich (Mg,Fe)O in Lowermost Mantle Heterogeneity. Annual Meeting, COMPRES, Big Sky, MT.

***Dobrosavljevic, V. V.**, Jackson, J. M. (2018) Equation of State of Iron-Rich (Mg,Fe)O. March Meeting, APS, Los Angeles, CA.

Dobrosavljevic, V. V., Jackson, J. M. (2017) Equation of State of Iron-Rich (Mg,Fe)O. Fall Meeting, AGU, New Orleans, LA.

Alpert, H., Edwards, L. O. V., Abraham, T., **Dobrosavljevic, V. V.** (2015) Spectral Line Maps of a Sample of Local Brightest Cluster Galaxies. Meeting, AAS, Seattle, WA.

Henrick, S. R., **Dobrosavljevic, V. V.**, Dick, H. J., Salters, V. J. M. (2014) Geochemistry of Basalts from

the Asymmetric Spreading Ridge Segment at 16.5°N on the Mid-Atlantic Ridge. Fall Meeting, AGU, San Francisco, CA.

FELLOWSHIPS

Consortium for Materials Properties Research in Earth Science (COMPRES) – Travel Grant	2019
Caltech First-Year Graduate Student Fellowship	2016 – 2017
Yale College Dean’s Research Fellowship	2015
Yale College Freshman Summer Research Fellowship	2013

NATIONAL RESEARCH FACILITY EXPERIENCE

Principal Investigator, General User Proposal #74384, <i>High-pressure melting investigations of Fe-Ni-Si</i> , Sector 13-IDD, Advanced Photon Source, IL	2021 – current
Principal Investigator, General User Proposal #69989, <i>High-pressure melting investigations of Fe and FeNiSi</i> , Sector 3-ID-B, Advanced Photon Source, IL	2020 – current
Principal Investigator, General User Proposal #58399, <i>Melting investigations of Fe-Ni-Si at high-pressure</i> , Sector 3-ID-B, Advanced Photon Source, IL	2018 – 2020
User, powder x-ray diffraction, Sector 12-2-2, Advanced Light Source, CA	2016 – 2021
User, Dual Beam SEM/FIB Microscope, Center for Functional Nanomaterials, Brookhaven National Laboratory, NY	2015 – 2016
User, Neptune MC-ICPMS mass spectrometer, National High Magnetic Field Laboratory, Florida State University, FL	2014

TEACHING AND MENTORSHIP EXPERIENCE

Student, E110 – <i>Principles of University Teaching and Learning in STEM</i>	Winter 2021
Teaching Assistant, Ge 111 – <i>Applied Geophysics Seminar and Field Course</i>	Canceled Spring 2020 Canceled Spring 2021
Teaching Assistant, Ge 164 – <i>Mineral Physics</i>	Winter 2019
Teaching Assistant, Ge 1 – <i>Earth and Environment</i>	Spring 2018

SERVICE

- Research Mentor (2019) for Visiting Undergraduate Research Program, Mentee – Cijin Zhou (University of Science and Technology of China, now graduate student at Caltech)
- Assistant Managing Editor (2018-2020), Editor (2017-2019), and Founding Member at *Caltech Letters*, student-run online science communication publication (caltechletters.org)

Outreach Booth Developer and Presenter (2018-2019), Caltech Science for March Event

Outreach Course Developer and Presenter (2020), Caltech Center for Teaching, Learning, and Outreach

Associate Director (2020-2021), Caltech Graduate Student Council (GSC)

Organizer (2019-2020), Caltech GSC Town Hall series and Department Local Student Committee

Member (2018-2019), Organizing Committee, Seismological Laboratory Seminar Series

WORKSHOPS

Attendee, *Advanced in Synchrotron-Based Research Workshop* 2021

Organizer, *Caltech Workshop on Collaborative Studies of the Deep Earth* 2020

Attendee, *Caltech Center for Comparative Planetary Evolution Kick-Off Workshop* 2019

Attendee, *Advanced Photon Source Workshop on Nuclear Resonant Scattering and Data Analysis* 2016