CV - Colin Jackson

Education:

2014: *Brown University*, Ph.D, Geological Sciences
Dissertation: "Experimental Constraints on the Geochemical Processing of Planetary Interiors: Noble Gases and Spinel Spectroscopy" Advisor: Stephen Parman
2011: *Brown University*, M.Sc, Geological Sciences
2008: *University of California, Santa Cruz*, B.S., Earth Science
Thesis: "Partitioning of Ni between Olivine and an Iron-Rich Basalt: Experiments, Partition Models, and Planetary Implications" Advisor: Jim Gill

Positions held:

2017-: Research Geologist, Department of Mineral Sciences, Smithsonian Institution
2016-2017-: Postdoctoral Fellow, Department of Mineral Sciences, Smithsonian Institution
2014-2016: Postdoctoral Fellow, Geophysical Laboratory, Carnegie Institution for Science
2009-2014: Research Assistant: Brown University, Experimental Petrology Lab
2008-2009: Research Assistant: USGS, Geophysics Unit of Menlo Park, CA
2007: Summer Intern, Lunar and Planetary Institute, Houston, TX

Publications (* denotes student mentored):

-N. Dygert, **C.R.M. Jackson**, M. A. Hesse[1], M. Tremblay, D. Shuster[5], J.T. Gu, Plate tectonic cycling modulates Earth's $^{3}He/^{22}Ne$ ratio, EPSL 498, 309-321

- **C.R.M. Jackson**, N.R Bennett, Z Du, E. Cottrell, Y, Fei, Early episodes of high-pressure core formation preserved in plume mantle, Nature, 553, 491

- Z. Du, **C.R.M. Jackson**, N.R Bennett, P. Driscoll, J Deng, K. Lee, E. Greenburg, V. Prakapenka, Y Fei, Insufficient energy from MgO exsolution to power early geodynamo, GRL, 44, 22

-K. Shimizu, Y. Liang, C. Sun, **C.R.M. Jackson**, A. Saal (2017), Parameterized Lattice Strain Models for REE Partitioning between Amphibole and Silicate Melt, Am. Min. 102, 2254–2267

-A.J. Smye, **C.R.M. Jackson**, M. Konrad-Schmolke, M.A. Hesse, S.W. Parman, D.L. Shuster, C.J. Ballentine (2017), Noble gases recycled into the mantle through cold subduction zones, EPSL 471, 65-73

-N. A. Starkey, **C.R.M Jackson,** R. C. Greenwood, S. Parman, I. A. Franchi, M.G. Jackson., J. G. Fitton, F. M. Stuart, M. Kurz, L. M. Larsen (2016) Triple oxygen isotopic composition of the high $^{3}He/^{4}He$ mantle. GCA 176, 227-238

-K.B. Williams*, **C.R.M. Jackson**, L.C. Cheek, K.L. Donaldson Hanna, C.M. Pieters, S.W. Parman, M.D. Dyar, T.C. Prissel (2016) Reflectance Spectroscopy of Chromium-bearing Spinel with Application to Recent Orbital Data from the Moon. Am. Min., 101, 726-734

-C. R. M. Jackson, D.L. Shuster, S.W. Parman, A.J. Smye (2016) Noble gas diffusivity hindered by low energy sites in amphibole, GCA 172, 65-75

-C. R. M. Jackson, S.W. Parman, S.P. Kelley, R.F. Cooper (2015), Light noble gas dissolution into ring structure-bearing materials and lattice influences on noble gas recycling**,** GCA 159, 1-15

-**C.R.M. Jackson,** L. Cheek, K. Williams, K. Donaldson-Hanna, C. Pieters, S. Parman, R. Cooper, M. Dyar, M. Nelms, and M. Salvatore (2014), Visible-Infrared Spectral Properties of Iron-bearing Aluminate Spinel Under Lunar-Like Redox Conditions, Am. Min., 99, 10, 1821-1833

-T.C. Prissel, S.W. Parman, **C.R.M. Jackson**, M.J. Rutherford, P.C. Hess, J.W. Head, L. Cheek, D. Dhingra, and C.M. Pieters (2014), Pink Moon: The Petrogenesis of Pink Spinel Anorthosites and Implications Concerning Mg-suite Magmatism, EPSL, 403, 144-156

-C. Pieters, K. Donaldson Hanna, L. Cheek, D. Dhingra, T. Prissel, **C. Jackson**, D. Moriarty, S. Parman, and L. Taylor (2014), The distribution of Mg-spinel Across the Moon and Constraints on Crustal Origin, Am. Min., 99, 10, 1893-1910

-**C.R.M. Jackson,** L. B. Ziegler, H. Zhang, M.G. Jackson, D. R. Stegman (2014), A geochemical evaluation of potential magma ocean dynamics using a parameterized model for perovskite crystallization, EPSL, 392, 154-165

-**C. R. M. Jackson,** S.W. Parman, S.P. Kelley, R.F. Cooper (2013), Constraints on light noble gas partitioning at the conditions of spinel peridotite melting, EPSL, 384, 178-187

-**C. R. M. Jackson,** S.W. Parman, S.P. Kelley, R.F. Cooper (2013), Noble gas transport into the mantle facilitated by high solubility in amphibole, Nat. Geoscience, 6, 562-565

-Donaldson Hanna, K. L., I. R. Thomas, N. E. Bowles, B. T. Greenhagen, C. M. Pieters, J. F. Mustard, **C. R. M. Jackson**, and M. B. Wyatt (2012), Laboratory emissivity measurements of the plagioclase solid solution series under varying environmental conditions, JGR, Vol 117, Issue E11

-J. Filiberto, **C. Jackson,** L. Le., and A.H. Treiman (2009), Partitioning of Ni between Olivine and an Iron-Rich Basalt: Experiments, Partition Models, and Planetary Implications. Am. Min. 94, 256-261

Proposals:

-National Science Foundation, Petrology and Geochemistry, Project title: Nitrogen transiting the redox and subduction barrier. 2017-2019, $ 153,363
-Argonne National Laboratory, Advanced Photon Source, 13 IDD, Project title: Experimental determinations of noble gas partitioning between Earth's major geochemical reservoirs during accretion, 16 shifts, 2014-2016
-Cooperative Institute for Dynamics Earth Research 2012, Group Research Proposal, Basal Magma Ocean (BMO) Working Group, $3950

Abstracts of active projects (* denotes student mentored):

-I. Ocampo***, C.R.M Jackson**, E. Cottrell**,** Nitrogen Solubility in Magma Oceans, AGU Fall 2018
- C.R.M. Jackson, Z. Du, N Bennett, Y. Fei, E Cottrell, Sequestration of nitrogen in the core during accretion, AGU Fall 2017
-N.R. Bennett, **C.R.M. Jackson**, Y. Fei, E. Bullock, J. Armstrong, The Metal-Silicate Partitioning of Tungsten at Magma Ocean Conditions Using a Laser-Heated Diamond Anvil Cell, AGU Fall Meeting 2015 V33A-3074
-R. Mershon*, **C.R.M Jackson**, Y Fei, S.M Elardo, N.R. Bennett, The Role of Oxygen Fugacity in Fractionating Parent-Daughter Pairs between Basaltic and Sulfidic Liquids, AGU Fall Meeting 2015 V53B-3133
-**C.R.M. Jackson**, N.R. Bennett, Y. Fei, Experimental Investigations of Noble Gas Behavior During Accretion: First Results of Argon Solubility in Mafic Liquids at High Pressure. LPSC 2015, #2496

Honors/Awards:

-Carnegie Postdoctoral Fellowship, 2014
-Joukowsky Outstanding Dissertation Prize, *Nominated (one per department)*, 2014
-Dissertation Fellowship, Brown University, 2013
-Lunar Science Forum, Poster Award, 1st Place, 2013
-Outstanding Student Paper Award, AGU Fall Meeting 2013, VGP Section
-First Year Fellowship, Brown University, 2009-10
-Dean's Research Award, UCSC, 2007-08
-Departmental and Thesis Honors, Dept. of Earth Science, UCSC

Invited Presentations:

-Penn State, Nov. 2017
-Geophysical Laboratory, 2016, 2018
-Syracuse University, 2016
-Ehime University, GRC, 2016
-UC Davis, 2016
-UC Riverside, 2016
-NMNH, Smithsonian, 2016
-Geological Society of Washington, 2016
-Uni. of Maryland, Seminar, 2016
-Uni. of Maryland, Colloquium, 2015, 2018
-Gordon Research Seminar, MA, 2013
-Post-AGU CIDER Workshop, 2012
-Solid Earth Seminar, Boston U., 2011

Teaching Experience:

-2014, Spring: Teaching Assistant: Introduction to Geochemistry (GEO 0230)
Taught lab sections. Led field trip groups. Grading.
-2010, Fall: Teaching Assistant: Physical Processes in Geology (GEO 0220)
Co-taught lab sections. Led field trip groups. Grading.
-2009-2014, Volunteer teacher, Vartan Gregorian Elementary School, Providence, RI. Developed and taught 2nd grade science classes ~4× yr^{-1}.
-2013, Summer, Guest lectured high school students on material properties of minerals

Professional Service and Synergistic Activities:

-Outstand Student Presentation Award Coordinator AGU Fall, 2017 & 2018
-Session convener: Japanese Geoscience Union, 2016, AGU Fall 2016, AGU Fall 2017, AGU Fall 2018, Goldschmidt 2018
-Journal reviewer for Geochemical Perspective Letters, Science Advances, Earth and Planetary Science Letters, Contributions to Mineralogy and Petrology, Chemical Geology, American Mineralogist, Review of Scientific Instruments, and Geochimica et Cosmochimica Acta
-Panelist for NASA
-External reviewer for NASA (Emerging Worlds, Solar System Workings) and NSF (OCE)
-Geological Sciences Graduate Student Representative to Faculty, 2012-2013
-Participant, CIDER Summer Workshop, Deep Time: How did early Earth become our modern world? July-August 2012, Santa Barbara, CA, USA
-Participant, Gordon Research Conference, Interior of the Earth, June 2013, Mt Holyoke, MA, USA
-Participant, Gordon Research Conference, Interior of the Earth, June 2011, Mt Holyoke, MA, USA