

## Seth Caley Kruckenberg

### *Curriculum Vitae*

Associate Professor - Boston College  
Department of Earth & Environmental Sciences

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### **Education**

**Ph.D. Geology**, University of Minnesota – Twin Cities (2009)

**B.S. Geology (Honors Program)**, University of Wyoming (2000)

**B.S. Environmental Geology / Geohydrology**, University of Wyoming (2000)

### **Professional Appointments**

#### **Associate Professor, Boston College**

Department of Earth and Environmental Sciences (2018–present)

#### **Assistant Professor, Boston College**

Department of Earth and Environmental Sciences (2012–2018)

#### **Visiting Instructor, University of Wisconsin – Milwaukee**

Department of Geosciences (2012)

#### **Postdoctoral Research Associate, University of Wisconsin – Madison**

Department of Geoscience (2011–2012)

#### **National Science Foundation Postdoctoral Research Fellow, University of Wisconsin – Madison**

Department of Geoscience (2009–2011)

### **Research Interests**

My research aims to understand the grain- to orogen-scale processes that give rise to dynamic strain localization, with an emphasis on feedbacks between deformation and partial melting in the mid-crust through upper mantle. As a quantitative, field-based geologist I integrate structural analysis with a variety of analytical methods - particularly electron backscatter diffraction (EBSD) analysis - to investigate how intrinsic rock properties (e.g., composition, melt fraction, grain size, crystallographic texture) and extrinsic conditions (e.g., pressure-temperature conditions) affect the rheology and deformation history of the lithosphere.

### **Funded Research Support** (*all dollar amounts shown are funds coming to SCK at his home institution*)

- Boston College Research Incentive Grant (RIG): *Investigating the tempo and timescales of deformation processes along a paleo-tectonic margin in eastern Massachusetts*. PI: Kruckenberg, awarded \$15,000 (May 2019 – May 2020)
- National Science Foundation, EAR-Tectonics: *Field and microstructural investigation of strain localization processes, texture development, and the rheology of naturally deformed lower crust (NSF EAR-1808117)*, PI: Kruckenberg, awarded \$312,566 (June 2018 – May 2021)
- National Science Foundation, Antarctic Earth Sciences: *Integrated evaluation of mantle xenoliths from the Fosdick Mountains, Antarctica (NSF OPP-1246320)*, PI: Kruckenberg, awarded \$219,645 (Jan 2013 – Dec 2015)
- National Science Foundation, EAR-Tectonics: *Collaborative Research: Effects of structural and compositional heterogeneity on upper mantle deformation and rheology (NSF EAR-1050041)*, PI: Tikoff; Co-PIs: Kruckenberg, Newman, Lamb, awarded \$255,222 (Mar 2011 – Feb 2015)
- National Science Foundation, Division of Earth Sciences Postdoctoral Fellowship: *Evaluating Strain localization, melt localization, and mantle rheology in Twin Sisters Ultramafic Body, Washington: A multi-scale approach (EAR-PF 0816245)*, PI: Kruckenberg, awarded \$160,000 (Jun 2009 – May 2011)
- Geological Society of America, Graduate Student Research Grant: *Partial melting, crustal flow and the interaction with upper crustal extensional processes*, PI: Kruckenberg, awarded \$3400 (Jun 2004)

### **Invited Lectures**

- University of Tennessee, Knoxville, Department of Earth and Planetary Sciences, Mar 2020 (*upcoming*)
- Geological Society of America Fall Meeting, “New perspectives on integrating fault zone behavior through the full thickness of the continental lithosphere” (Topical Session), Sep 2019
- University of Maine, School of Earth and Climate Sciences, Feb 2018
- Microanalysis Society Electron Backscatter Diffraction 2016 Conference (Keynote Speaker), University of Alabama, May 2016

- Massachusetts Institute of Technology, Department of Earth, Atmospheric & Planetary Sciences, Apr 2016
- University of Vermont, Department of Geology, Nov 2015
- Geological Society of America Fall Meeting, “A lower crustal perspective on magmatic arc processes” (Topical Session), Nov 2015
- University of Massachusetts – Amherst, Department of Geosciences, Feb 2013
- American Geophysical Union Fall Meeting, “Melt extraction through the lithosphere: Interactions among melt evolution, deformation, and migration II” (Topical Session), Dec 2012
- Brown University, Geological Sciences, Sept 2012
- University of Wisconsin-Milwaukee, Department of Geosciences, Mar 2012
- Southern Methodist University, Department of Earth Sciences, Feb 2012
- Colorado School of Mines, Department of Geology and Geological Engineering, Feb 2011
- Southern Illinois University at Carbondale, Department of Geology, Feb 2010
- University of Wisconsin-Milwaukee, Department of Geosciences, Nov 2009
- Carleton College, Department of Geology, Jan 2007

### **Awards and Honors**

#### ***Professional:***

- Most-Read GSA Journal Article in Jan 2019: “*From intracrystalline distortion to plate motion: unifying structural, kinematic, and textural analysis in heterogeneous shear zones through crystallographic orientation-dispersion methods*” by Kruckenberg et al., published in the Journal *Geosphere*
- Exceptional Reviewer for the Journal *Lithosphere*, 2012

#### ***Postdoctoral:***

- Postdoctoral Research Fellowship, National Science Foundation (EAR-PF 0816245), 2009

#### ***Graduate:***

- University of Minnesota Graduate School Fellowship, Univ. Minnesota, 2002
- GAANN (Graduate Assistance in Areas of National Needs) Fellowship, Univ. Minnesota, 2003
- Dennis Fellowship, Dept. Geology & Geophysics, Univ. Minnesota, 2004
- Samuel Goldich Footstep Award, Dept. Geology & Geophysics, Univ. Minnesota, 2005
- William H. Emmons Fellowship, Dept. Geology & Geophysics, Univ. Minnesota, 2005
- Doctoral Dissertation Fellowship, Univ. Minnesota, 2007
- Outstanding Teaching Assistant Award, Dept. Geology & Geophysics, Univ. Minnesota, 2007

#### ***Undergraduate:***

- Richardson Family Trust Scholarship, Univ. Wyoming, 1997-2000
- Wyoming Student Leader Scholarship, Univ. Wyoming, 1997-2000
- Outstanding Junior Student Award, Dept. Geology & Geophysics, Univ. Wyoming, 1998-99
- Schlumberger Collegiate Award, Dept. Geology & Geophysics, Univ. Wyoming, 1999
- Paul Stock Foundation Honors Program Scholarship, Univ. Wyoming, 2000
- S.H. Knight Science Camp Award, Dept. Geology & Geophysics, Univ. Wyoming, 2000.
- Wyoming Geological Association S.H. Knight Scholarship, Dept. Geology & Geophysics, Univ. Wyoming, 2000
- Michael H. Walsh Memorial Scholarship Fund, Dept. Geology & Geophysics, Univ. Wyoming, 2000
- E.I. Dupont-Conoco Geophysics Scholarship, Dept. Geology & Geophysics, Univ. Wyoming, 2001
- Phi Beta Kappa Honor Society, Alpha Association of Wyoming, inducted 2000
- Outstanding Undergraduate Award, Dept. Geology & Geophysics, Univ. Wyoming, 2001
- Top 20 outstanding graduates, College of Arts & Sciences, Univ. Wyoming, 2000-01

### **Teaching Experience**

#### **Associate Professor, Boston College:**

- **Earth Materials** (EESC 2220), Spring 2019
- **Structural Geology** (EESC 3385), Fall 2018
- **Earth Systems Seminar** (EESC 6691), Fall 2018
- **Graduate Reading and Research in Geology** (EESC 7796), Spring 2019

**Assistant Professor, Boston College:**

- **Exploring the Earth** (EESC 1132), Fall 2012, Fall 2015, Fall 2016, Fall 2017
- **Earth Materials** (EESC 2220), Spring 2014, Spring 2015, Spring 2017
- **Introduction to Structural Geology** (EESC 2285; as of 2017: EESC 3385), Spring 2013, Fall 2014
- **Geological Field Mapping Methods** (EESC 2288), Spring 2014
- **Structural Geology** (EESC 3385; formerly EESC 2285), Spring 2017
- **Tectonics** (EESC 5543), Fall 2013, Fall 2015, Fall 2017
- **Advanced Structural Geology** (EESC 6685; formerly EESC 4485), Spring 2015, Spring 2018
- **Earth Systems Seminar** (EESC 6691), Fall 2012
- **Graduate Reading and Research in Geology** (EESC 7799), Spring 2018

**Course Instructor / Ad hoc lecturer, University of Wisconsin-Milwaukee:**

- **Structural Geology** (Geosci 414), Spring 2012

**Course Instructor, University of Minnesota-Twin Cities:**

- **Field Workshop: The Geology of Scotland** (Geol 3890), Spring-Summer 2007
- **Advanced Field Geology** (Geol 4911), Summer 2007

**Teaching Assistant, University of Minnesota-Twin Cities:**

- **Structural Geology**, 2006
- **Introductory Field Geology**, 2003
- **Igneous and Metamorphic Petrology**, 2007
- **Earth and Its Environments**, 2008

**Teaching Assistant, University of Wyoming:**

- **Geology Field Course**, 2001
- **Physical Geology**, 1999

**Academic Mentoring and Advising at Boston College**

***Postdoctoral Researchers:***

- Dr. Vasileios Chatzaras (Jan-Dec 2013)

***Graduate (M.S.) Students Advised:***

- Miranda Wiebe (Aug 2018-present)
- Lauren Shea (Aug 2017-July 2019)
- Martha Parsons (Sep 2013-May 2017)
- William Montz (Jan 2014-May 2016)
- Shaina Cohen (Sep 2013-May 2016)

***M.S. Thesis Committees (Member):***

- Anna Gerrits (2017), Thomas Farrell (2017), Hannah Chambless (2016), Eric Fisher (2015-2016), Jamie Kendall (2015-2016), Siyu Liu (2016), Oluwaseun Fadugba (2014), Stephen Hilfiker (2014), Caleb Lucy (2014), Tyler Cox (2013), Steven Fischer (2013), Vanessa Napoli (2013), Christopher Soeller (2013), Jacqueline Cinella (2012), Brendan Hildum (2012)

***Undergraduate Research Theses Advised:***

- Catherine Goldberg (2016), Brendan Hayward (2016), Kellie Corwin (2015)

**Service Activities at Boston College**

*\* Note: I am currently on leave for a one-year faculty sabbatical so my service duties will resume in July 2020.*

***University:***

- Core Facility Advisory Committee (Apr 2019 – June 2019)
- Faculty Grievance Committee (Jul 2018 – June 2019)

***College of Arts and Sciences:***

- Strategic Planning for the Natural Sciences Committee, Jan 2014 – Jul 2015
- Interdisciplinary Science for Society Sub-Committee: Curriculum Planning, Jan 2015 – Jul 2015

***Department of Earth and Environmental Sciences:***

*\* Note: I am currently on leave for a one-year faculty sabbatical so my service duties will resume in July 2020.*

- Assistant Chair, Aug 2017 – June 2019

- Graduate Studies Committee, Jun 2013 – Aug 2014; Jul 2016 – June 2019
- Shared Facilities Committee, Oct 2013 – June 2019
- Library Committee/Liaison, Sep 2013 – June 2019
- Geophysics Visiting Assistant Professor Search Committee, Mar 2017 – Aug 2017
- Graduate Program Development Subcommittee, Sep 2016 – Dec 2016
- Graduate Program Director, Aug 2014 – Jul 2015
- Petrology Faculty Search Committee, Jul 2013 – Sep 2014
- Graduate Studies Committee, Jun 2013 – Aug 2014
- Undergraduate Studies Committee, Sep 2012 – May 2013
- Sedimentary Processes Faculty Search Committee, Oct 2012 – Apr 2013

### **Professional Service and Synergistic Activities**

#### ***Ph.D. Thesis Committees (External Reviewer):***

- Thomas Czertowicz, University of Otago, New Zealand, 2016

#### ***Peer-Reviewer (Each journal or funding agency is listed only once for multiple reviews):***

*American Journal of Science, Cambridge University Press* (pre-publication textbook review), *Contributions to Mineralogy and Petrology, Geological Society of America Bulletin, GSA Today, International Geology Review, Journal of Metamorphic Geology, Journal of Structural Geology, Lithosphere, National Science Foundation* (EAR Tectonics), *National Science Foundation* (Division of Polar Programs), *Precambrian Research, Tectonics, Tectonophysics*

#### ***Scientific Outreach and Mentoring:***

- Geological Society of America Campus Representative, Boston College, Sept 2013 – present
- Participated in the RoBOT: Rocks Beneath Our Toes” High School Outreach Program with Prof. Ethan Baxter, Fall 2017
- Materials Research Society ‘Lunch and Learn’ presentation (sponsored by Tescan USA), entitled: *Electron Backscatter Diffraction Analysis: Principles and Considerations*, Dec 2013

#### ***Professional Community Committee Service***

- Evaluating Data Standards and Vocabulary for Structural Geology, Microstructures, and Experimental Deformation, Pre-AGU NSF Sponsored Workshop, December 2018
- Geological Society of America Structural Geology and Tectonics Division Outstanding Publication Award Committee, Member: May 2016 – Oct 2017; Chair: Oct 2017 – April 2018
- STRABO Data System for Structural Geology and Tectonics subcommittee for migmatites and fabrics in plutons, Sep 2016-December 2017
- Subcommittee for Grand Challenge #2: Rheology of the lithosphere, for the “Future Directions in Tectonics” community White Paper, supported by NSF-EAR-1542001, Oct 2016 – Apr 2017

#### ***Sessions Chaired:***

- “Challenges in Tectonics 2: Beyond Steady State: New Developments in Understanding Strain Localization Processes and the Rheology of the Lithosphere” (co-conveners Jamie Levine and Elena Miranda): *Geological Society of America* Fall Meeting (Seattle, WA), 2017
- “Deformation Processes: Microstructure, Rheology, and the Effects of Fluids III-V”, 1 oral and 2 poster sessions (co-conveners Lars Hansen, Haemyeong Jung, Veronique Le Roux, Katsuyoshi Michibayashi, Jessica Warren, and Junfeng Zhang): *American Geophysical Union* National Meeting (San Francisco, CA), 2013
- “Constraints on strain rates, stresses, and deformation processes during shear zone localization at different lithospheric levels” (co-conveners Julie Newman, David Kohlstedt, and Basil Tikoff): *Geological Society of America* Fall Meeting (Minneapolis, MN), 2011
- “Deformation of the lithosphere: field observations, experimental investigations and numerical studies” (co-conveners Patrice Rey and Eric Goergen): *Geological Society of America* Fall Meeting (Minneapolis, MN), 2011
- “Melt-present deformation in the lithosphere” (co-conveners Eric Ferré, Benoit Ildefonse, Roberto Weinberg and Aaron Yoshinobu): *American Geophysical Union* National Meeting (San Francisco, CA), 2010
- “Evaluating Channel Flow in Orogens” (co-conveners Rory McFadden and Christine Siddoway): *Geological Society of America* Fall Meeting (Portland, OR), 2009

***Professional Development - Workshops and Symposia Attended:***

- On the Cutting Edge – Professional Development for Geoscience Faculty Workshop: “Teaching Structural Geology, Geophysics, and Tectonics in the 21<sup>st</sup> Century”, University of Tennessee, Knoxville, 2012
- On the Cutting Edge – Professional Development for Geoscience Faculty Workshop: “Early Career Geoscience Faculty: Teaching, Research, and Managing Your Career”, College of William and Mary, Williamsburg, VA, 2012
- Penrose Conference: “Deformation Localization in Rocks: New Advances”, Cadaqués & Cap de Creus Peninsula, Catalonia, Spain, 2011
- “Advanced EBSD Workshop for Geoscientists”, Oxford Instruments, Concord, MA, 2010
- DELTA Program: “Creating a cooperative learning environment”, University of Wisconsin-Madison, 2009-2010
- Participant and co-organizer of field excursions and associated field guide for the 2007 Penrose Conference: “*Extending a Continent: Architecture, Rheological Coupling, and Heat Budget*”, the results of which were published in: Vanderhaeghe et al., 2007 (complete reference in peer-reviewed publications).
- Integrated Solid Earth Sciences (ISES) Summer School in Rheology, Colorado College, 2006

***Other:***

- Collaborated with Basil Tikoff (Univ. of Wisconsin), Maria Chang (Ph.D. candidate, Northwestern University), and other cognitive psychologists as part of the NSF-funded Spatial Intelligence & Learning Center (SILC) to develop tools and teaching modules for introductory geology courses using the program Cogsketch (2010-2011). Cogsketch is a software program capable of providing real-time tutoring to students based on features they identify on images and diagrams.
- Participated in nine weeks of Antarctic field research (2005-06) as part of NSF-OPP award 0338279 to C.S. Siddoway that had a principal focus on evaluating felsic melt influences on crustal rheology in the Fosdick Mountains.

**Peer-Reviewed Publications**

\*denotes work conducted as Kruckenberg advised BC student or postdoc; †denotes SEM Facility user

***Near submission:***

- \*†Shea, L. and **Kruckenberg, S.C.** Microstructural and textural analysis of naturally deformed granulites in the Mount Hay block of central Australia: implications for the rheology of polyphase lower crustal materials. To be submitted to *Earth and Planetary Science Letters* in Jan 2020.
- †Chatzaras, V. and **Kruckenberg, S.C.** Crystallographic preferred orientation and seismic anisotropy of the lithospheric mantle beneath Marie Byrd Land, Antarctica: Constraints from peridotite xenoliths. To be submitted (Jan 2020 deadline) to a special volume on the Antarctica mantle in the *Geological Society of London*.

***Accepted:***

- †Chatzaras, V., Tikoff, B., **Kruckenberg, S.C.**, Titus, S.J., Teyssier, C., and Drury, M.R. (*Accepted*) Stress variations in space and time within the mantle section of an oceanic transform zone: Effects of the seismic cycle. Submitted on Oct 29<sup>th</sup>, 2019 to *Geology*.

***Published Manuscripts:***

22. †Zhao, N., †Hirth, G., †Cooper, R.F., **Kruckenberg, S.C.**, and Cukjati, J. (2019) Low viscosity of mantle rocks linked to phase boundary sliding. *Earth and Planetary Science Letters*, 517, p. 83-94, doi: 10.1016/j.epsl.2019.04.019
21. Stewart, E., Newman, J., Tikoff, B., †Donnelly, S., †German, L., †Chatzaras, V., Lamb, W.M, Miller, B., and **Kruckenberg, S.C.** (2019) Coupled deformation and melt-migration events recording subduction initiation, Dun Mountain Ophiolite, New Zealand. *Geological Society, London, Memoirs January 2019*, 49 (1), p. 93-117, doi: 10.1144/M49.5.
20. **Kruckenberg, S.C.**, †Michels, Z.D. and \*†Parsons, M. (2019) From intracrystalline distortion to plate motion: unifying structural, kinematic, and textural analysis in heterogeneous shear zones through crystallographic orientation-dispersion methods. *Geosphere*, special themed issue honoring Arthur W. Snoke: “Active Margins in Transition”; 15 (2), p. 357-381, doi: 10.1130/GES01585.1

19. †Xypolias, P., Gerogiannis, N., Chatzaras, V., Papapavlou, K., **Kruckenberg, S.C.**, Aravadinou, E., and Michels, Z. (2018) Using incremental elongation and shearing to unravel the kinematics of a complex transpressional zone. *Journal of Structural Geology*; doi: 10.1016/j.jsg.2018.07.004
18. Vanderhaeghe, O., **Kruckenberg, S.C.**, Gerbault, M., Martin, L., Duchêne, S., and Deloule, E. (2018) Crustal-scale convection and diapiric upwelling of a partially molten orogenic root (Naxos dome, Greece). *Tectonophysics*; doi: 10.1016/j.tecto.2018.03.007
17. Tikoff, B., Kahn, M.J., Gaschnig, R.M., Michels, Z.D., Davenport, K., Hole, J.A., Stanciu, C.A., Fayon, A.K., and **Kruckenberg, S.C.** (2017) Exploring the western Idaho shear zone using the StraboSpot data system, *in* Haugerud, R.A., and Kelsey, H.M., eds., From the Puget Lowland to East of the Cascade Range: Geologic Excursions in the Pacific Northwest: Geological Society of America Field Guide 49, p. 229-254, doi:10.1130/2017.0049(09)
16. \*†Montz, W.J. and **Kruckenberg, S.C.** (2017) Cretaceous partial melting, deformation, and exhumation of the Potters Pond migmatite domain, west-central Idaho. *Lithosphere*; 9 (2): 205-222. doi: 10.1130/L555.1
15. Frost, C.D., McLaughlin, J.F., Frost, B.R., Fanning, C.M., Swapp, S.M., **Kruckenberg, S.C.**, and Gonzales, J. (2017) Hadean origins of Paleoproterozoic continental crust in the central Wyoming Province. *Geological Society of America Bulletin*; 129 (3-4):259-280. doi: 10.1130/B31555.1
14. \*†Chatzaras, V., **Kruckenberg, S.C.**, \*†Cohen, S., Medaris Jr., L.G., Withers, A.C., and Bagley, B. (2016) Axial-type olivine crystallographic preferred orientations: the effect of strain geometry on mantle texture. *Journal of Geophysical Research: Solid Earth*; 121 (7): 4895-4922. doi: 10.1002/2015JB012628
13. †Chin, E.J., †Soustelle, V., †Hirth, G., Saal, A., **Kruckenberg, S.C.**, and Eiler, J. (2016) Microstructural and geochemical constraints on the evolution of deep arc lithosphere. *Geochemistry, Geophysics, Geosystems*; 17 (7): 2497-2521. doi: 10.1002/2015GC006156
12. †Michels, Z.D., **Kruckenberg, S.C.**, Davis, J.R., and Tikoff, B. (2015) Determining vorticity axes from grain-scale dispersion of crystallographic orientations. *Geology*; 43 (9): 803-806. doi: 10.1130/G36868.1
11. Tikoff, B., Blenkinsop, T., **Kruckenberg, S.C.**, Morgan, S., Newman, J., and Wojtal, S. (2013) A perspective on the emergence of modern structural geology: Celebrating the feedbacks between historically based and process-based approaches. *In*: Bickford, M.E., ed., *The Web of Geological Sciences: Advances, Impacts, and Interactions*: Geological Society of America Special Paper no. 500, 65-119. doi: 10.1130/2013.2500(03)
10. **Kruckenberg, S.C.**, Tikoff, B., Toy, V.G., Newman, J., and Young, L. (2013) Strain localization associated with channelized melt migration in upper mantle lithosphere: insights from the Twin Sisters ultramafic complex, Washington, USA. *Journal of Structural Geology*; 50: 133-147. doi: 10.1016/j.jsg.2012.10.009
9. Rey, P.F., Teyssier, C., **Kruckenberg, S.C.**, and Whitney, D.L. (2012) Viscous collision in channel explains double domes in metamorphic core complexes: REPLY. *Geology*; 40(10): e280. doi: 10.1130/G33202Y.1
8. **Kruckenberg, S.C.**, Vanderhaeghe, O., Ferré, E.C., Teyssier, C., and Whitney, D.L. (2011) Flow of partially molten crust and the internal dynamics of a migmatite dome, Naxos, Greece. *Tectonics*; 30: TC3001. doi: 10.1029/2010TC002751
7. **Kruckenberg, S.C.** and Whitney, D.L. (2011) Metamorphic evolution of sapphirine- and orthoamphibole-cordierite-bearing gneiss, Okanogan dome, Washington, USA. *Journal of Metamorphic Geology*; 29 (4): 425-449. doi: 10.1111/j.1525-1314.2010.00926.x
6. Rey, P.F., Teyssier, C., **Kruckenberg, S.C.**, and Whitney, D.L. (2011) Viscous collision in channel explains double domes in metamorphic core complexes. *Geology*; 39(4): 387-390. doi: 10.1130/G31587.1
5. **Kruckenberg, S.C.**, Ferré, E.C., Teyssier, C., Vanderhaeghe, O., Whitney, D.L., Seaton, N.C.A., and Skord, J.A. (2010) Viscoplastic flow in migmatites deduced from fabric anisotropy: an example from the Naxos dome, Greece. *Journal of Geophysical Research - Solid Earth*; 115: B09401. doi: 10.1029/2009JB007012
4. **Kruckenberg, S.C.**, Whitney, D.L., Teyssier, C., Fanning, C.M., and Dunlap, W.J. (2008) Paleocene-Eocene migmatite crystallization, extension, and exhumation in the hinterland of the Northern Cordillera: Okanogan dome, Washington, USA. *Geological Society of America Bulletin*; 120: 912-929. doi: 10.1130/B26153.1
3. Whitney, D.L., Teyssier, C., **Kruckenberg, S.C.**, Morgan, V.L., and Iredale, L.J. (2008) High-pressure-low-temperature metamorphism of metasedimentary rocks, southern Menderes Massif, western Turkey. *Lithos*; 101: 218-232. doi: 10.1016/j.lithos.2007.07.001

2. McFadden, R., Siddoway, C.S., Teyssier, C., Fanning, C.M., and **Kruckenberg, S.C.** (2007) Cretaceous oblique detachment tectonics in the Fosdick Mountains, Marie Byrd Land, Antarctica. *in: Antarctica: A Keystone in a Changing World-Online Proceedings of the 10th ISAES*, edited by AK Cooper and CR Raymond et al. USGS Open-File Report 2007-1047; Short Research Paper 046P: 6 p. doi: 10.3133/of2007-1047.srp046
1. Vanderhaeghe, O., Hibsich, C., Siebenaller, L., Duchêne, S., de St Blanquat, M., **Kruckenberg, S.C.**, Fotiadis, A., and Martin, L. (2007) Penrose Conference – Extending a Continent – Naxos Field Guide. *in: (Eds.) G. Lister, M. Forster, and U. Ring, Inside the Aegean Metamorphic Core Complexes. Journal of the Virtual Explorer; 27(4).* doi: 10.3809/jvirtex.2007.00175

### **Other Publications**

- Huntington, K.W., and Klepeis, K.A., with 66 community contributors (2018) Challenges and opportunities for research in tectonics: Understanding deformation and the processes that link Earth systems, from geologic time to human time. A community vision document submitted to the U.S. National Science Foundation. University of Washington, 84 pp., <https://doi.org/10.6069/H52R3PQ5>
- **Kruckenberg, S.C.** (2009), The dynamics of migmatite domes in extending orogens, Ph.D. thesis, 401 pp., University of Minnesota-Twin Cities.

### **Abstracts and Conference Proceedings**

\*denotes work conducted as Kruckenberg advised BC student or postdoc; †denotes SEM Facility user

65. †Chatzaras, V., Tikoff, B., **Kruckenberg, S.C.**, Titus, S.J., Teyssier, C., and Drury, M.R. (2019) Seismic cycle recorded by microstructural and stress variations in the mantle section of an oceanic transform zone. AGU, Fall Meet. Suppl., Abstract T43C-0450.
64. **Kruckenberg, S.C.** and †Michels, Z.D. (2019) Linking grain- to plate-scale deformation and kinematics through analysis of micro-rotations in polyphase shear zones (Invited). Abstracts with Programs – Geological Society of America, v. 51 (5), doi: 10.1130/abs/2019AM-335532.
63. †McFadden, R.R., **Kruckenberg, S.C.**, Senjem, A., and Taylor, J.M. (2019) Microstructural analysis and kinematics of quartzofeldspathic migmatitic gneisses within the Wildhorse Detachment, Pioneer Mountains, Idaho. IODP/ICDP New Caledonia Peridotite Amphibious Drilling Workshop. Montpellier, France (January 22-24, 2019). Abstracts with Programs – Geological Society of America, v. 51 (5), doi: 10.1130/abs/2019AM-339368.
62. †Nagurney, A.B., Ross, N.L., Caddick, M.J., Law, R.D., and **Kruckenberg, S.C.** (2019) Crystallographically controlled void space at grain boundaries in exhumed metamorphic rocks. Abstracts with Programs – Geological Society of America, v. 51 (5), doi: 10.1130/abs/2019AM-336575.
61. †Chatzaras, V., Tikoff, B., **Kruckenberg, S.C.**, Titus, S.J., Teyssier, C., and Drury, M.R. (2019) Stress variations in the mantle section of an oceanic transform fault: Bogota Peninsula Shear Zone, New Caledonia. IODP/ICDP New Caledonia Peridotite Amphibious Drilling Workshop. Montpellier, France (January 22-24, 2019).
60. **Kruckenberg, S.C.**, †Michels, Z.D., and \*†Parsons, M.M. (2018) From intracrystalline distortion to tectonic motion: Unifying field, microstructural, and textural analyses in heterogeneous shear zones through orientation-dispersion methods. Eos Trans. AGU, Fall Meet. Suppl.
59. \*†Shea, L. and **Kruckenberg, S.C.** (2018) Investigating deformation processes and the rheology of polyphase lower crust: Integrated structural and textural analysis of naturally deformed granulites from the Mount Hay block of central Australia. Eos Trans. AGU, Fall Meet. Suppl.
58. †Zhao, N., †Hirth, G., †Cooper, R.F., **Kruckenberg, S.C.**, and Cukjati, J. (2018) Strain weakening of olivine-rich rocks linked to microstructural evolution during diffusion creep. Eos Trans. AGU, Fall Meet. Suppl.
57. †Meyers, C.D., Kohlstedt, D.L., Zimmerman, M.E., and **Kruckenberg, S.C.** (2018) Microstructural recovery of experimentally deformed olivine rocks. Eos Trans. AGU, Fall Meet. Suppl.
56. Withers, A., **Kruckenberg, S.C.**, and Chatzaras, V. (2018) The hydration state of the west Antarctic lithospheric mantle. Goldschmidt Abstracts, 2018.
55. †Zhao, N., †Hirth, G., †Cooper, R.F., and **Kruckenberg, S.C.** (2017) Grain boundary sliding in olivine + clinopyroxene aggregates: weakening mechanism and microstructure. Eos Trans. AGU, Fall Meet. Suppl. MR41D-0424.

54. **Kruckenberg, S.C.** and \*<sup>†</sup>Montz, W.J. (2017) Rheological transitions and structural overprinting associated with Cretaceous partial melting and strain localization in the Potters Pond migmatite domain, west-central Idaho. Abstracts with Programs – Geological Society of America, v. 49 (6), doi:10.1130/abs/2017AM-306450
53. <sup>†</sup>Chatzaras, V., **Kruckenberg, S.C.**, Titus, S., Tikoff, B., Teyssier, C., and Drury, M. (2017) Strain localization processes in the upper mantle section of an oceanic paleotransform fault (Bogota Peninsula Shear Zone, New Caledonia). Abstracts with Programs – Geological Society of America.
52. <sup>†</sup>Chatzaras, V., **Kruckenberg, S.C.**, Titus, S., Tikoff, B., Teyssier, C., and Drury, M. (2016) Three-dimensional mantle flow near an oceanic paleotransform fault system: geological constraints from the Bogota Peninsula, New Caledonia. Eos Trans. AGU, Fall Meet. Suppl., Abstract T33C-3043.
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