

Sarah Lambart

Cardiff University
School of Earth and Ocean Sciences
Main Building, Park Pl, Cardiff CF10 3AT
United Kingdom

+44 7397 89 5005 (cell)
LambartS@cardiff.ac.uk
<http://sarahlambart.com>

Academic appointments

Assistant Professor in Igneous Processes

University of Utah - Department of Geology and Geophysics

From Feb. 2018

MSCA-COFUND Fellow

Cardiff University - School of Earth and Ocean Sciences

2017

Visiting Assistant Professor

UC Davis - Department of Earth and Planetary Sciences

Jul. 2015 – Dec. 2016

Lamont postdoctoral fellow

Columbia University - Lamont-Doherty Earth Observatory

Sep. 2013 – Jun. 2015

Postdoctoral scholar

Caltech – Division of Geological and Planetary Sciences

Sep. 2010 – Aug. 2013

Education

2006-2010: Ph.D. in Earth Sciences, Blaise Pascal University, France

2004-2006: MS Earth Sciences, Blaise Pascal University, France

2001-2004: BS Earth Sciences, Blaise Pascal University and Rennes I University, France

Research interests

- Magma generation and transport
- Magma and Fluid - Rock interactions
- Mantle heterogeneities
- Oceanic crust accretion

Key skills:

- experimental: Piston-cylinder, 1 atm. gas-mixing furnaces, triaxial deformation apparatus; occasional user: multi-anvil press
- analytical: Electron microprobe (JEOL JXA-8200 and CAMECA SX100), Scanning Electron Microscopy (Zeiss Sigma Analytical SEM and JEOL 5910-SV), TIMS (TRITON-Plus), Optical Microscopy; occasional user: LA-ICP-MS, FTIR spectroscopy, X-ray microtomography
- modeling: alphaMELTS (MELTS, pMELTS and pHMELTS); occasional user: MATLAB, LabView

Awards, Grants and fellowships

- “Experimental investigation of the melt-plagioclase reaction in the lower oceanic crust.” (**Lead PI**, CUROP project (undergrad internships): 06/17-08/17, £1600) – **2017**
- “MORB2Mantle: tracking mid-ocean ridge basalt from source to seafloor” (**MSCA-COFUND fellowship**: 01/17-12/19; ~£255k) – **2016**
- “Near-fractional melting of pyroxenite: Experimental investigations and applications to basalt petrogenesis” (**Lead PI**, NSF-EAR: 06/16-05/18; ~\$154k) – **2016**
- “A combined experimental and theoretical investigation to reactive flow in brittle media with applications to solid Earth geodynamics” (**Postdoc co-author**, NSF-EAR: 06/15-05/17~\$409k) – **2015**

- “Collaborative Research: Alteration of mantle peridotite: Geochemical fluxes and dynamics of far from equilibrium transport (**Postdoc co-author**, NSF-EAR: 09/15-08/18; ~\$2,972k, LDEO part: \$1,968k) – **2015**
- “Experimental & Theoretical Studies of Reaction-Driven Cracking in Natural & Engineered Geological Systems” (**co-PI**, RISE award: 06/14-05/16; ~\$160k) – **2013**
- **Postdoctoral fellowship** (one year of full-time funding at LDEO) – **2012**
- University **travel grant** for the Melt-glass-magmas short course, München, Germany – **2008**
- **PhD Scholarship** “MESR” (three years of full-time funding) – **2006**
- **National scholarship** for highly ranked students – **2005**

Invited talks and seminars:

- 2017:** Invited talk at the AGU Fall meeting (declined)
 Invited talk at the Goldschmidt conference, Paris- FR, Aug. 2017
 Departmental seminar at the University of Utah, UT-USA, Feb. 2017
 Seminar at CRPG, Nancy, FR, Feb. 2017
- 2016:** Seminar at the University of Nevada, Reno, UT-USA, Sep. 2016
 Invited presentation at the EGU General assembly (declined)
- 2015:** Invited talk at the Geological Society of America Annual Meeting, Nov. 2015
 Geoscience seminar & Journal club seminar at Aarhus University, DK, Mar. 2015
 Geochemistry seminar at Lamont-Doherty Earth Observatory, NY-USA, Mar. 2015
 DTM weekly seminar at the Carnegie Institution, DC-USA, Mar. 2015
- 2014:** Earth and Planetary Sciences Seminar at AMNH, NY-USA, Oct. 2014
- 2013:** Geodynamics seminar at Lamont-Doherty Earth Observatory, NY-USA, Oct. 2013
 Departmental seminar at Rice University, TX-USA, Jan. 2013
- 2012:** Brown bag seminar at University of California Davis, CA-USA, Apr. 2015
 Division seminar at Geosciences Montpellier, FR, Apr. 2015
- 2011:** Magmas seminar at ISTO, Orléans, FR, Dec. 2011
 General seminar at CRPG, Nancy, FR, Dec. 2011
 General seminar at Laboratoire Magmas et Volcans, Clermont-Ferrand, FR, Dec. 2011
- 2010:** Invited talk at the AGU Fall Meeting, Dec. 2010
- 2009:** Special seminar at California Institute of Technology, Dec. 2009

Teaching and training: (IR= instructor of record; TA=teaching assistant)

Year	IR/TA	Course	Level/year	Institutions	# students
2017	co-IR	Earth materials	Undergrad. 1	Cardiff U.	60
2016	IR	Mineralogy	Undergrad. 1-2	UC Davis	38
	co-IR	The Earth	Undergrad. 0-1	UC Davis	21
	IR	Igneous Petrology	Undergrad. 3-4	UC Davis	25
	IR	Optical Mineralogy	Undergrad. 2-3	UC Davis	22
2015	IR	Mineralogy	Undergrad. 1-2	UC Davis	28
	co-IR	Advanced petrology	Graduate 1-3	Columbia U.	8
2009	TA	Cartography 101	Undergrad. 1	Blaise Pascal U.	15
2006-09	co-IR	Mathematics	Undergrad. 1	Blaise Pascal U.	30
	TA	Volcanic cartography	Graduate 1	Blaise Pascal U.	30

Mentored Students:

- Valérie Payré (master student; co-supervised with Ed Stolper; Caltech 03/2013-08/2013)

- Ben Robinson (Research assistant; Lamont-Doherty Earth Observatory, summer 2016)
- Cecilia Ajoku and Bryan McCarthy (senior undergrads; UC Davis summer & fall 2016)
- Paul Edwards (master student; co-supervised with Chip Lesher; UC Davis 09/2016-)
- Matthew Cook (MESci student; Cardiff University 06/2017 – 08/2017)

Professional development

- Visiting Scientist at V.U. Amsterdam, Netherland – Summer & Fall 2017
- Geochemistry Group Research in Progress, Bristol, UK – Apr. 2017
- GeoPRISM mini-workshop: “From rifting to drifting: evidence from rifts and margins worldwide”, San Francisco (CA), USA – Dec. 2015
- DCO thematic institute: “Carbon from the Mantle to the Surface”, Berkeley (CA), USA – Jul. 2015
- CIDER Summer Program: “Mantle Interactions with the Hydrosphere & Carbosphere”, Berkeley (CA), USA – Jul. 2015
- RCN-CCUS annual meeting and workshop, New-York (NY), USA – Apr. 2014
- EarthCube DEFORM/COMPRES workshop, Alexandria (VA), USA – Nov. 2013
- Short course «MELTS Camp», Pasadena (CA), USA – Sep. 2011
- Short course «Melts, Glasses, Magmas», München, Germany – Jun. 2007
- Short course «Gros Volumes», Clermont-Ferrand, France – Apr. 2007

Field experience

- 2016: Smartville complex, CA, fieldtrip supervision (1 day)
- 2014: Oman ophiolite, Oman, fieldwork (two weeks); Beni Bousera, Morocco, Orogenic Lherzolite Conf., Field Forum (3 days)
- 2006-09: Clermont-Ferrand area, France, field camp supervision (3 days); Massif Central, France, field camp supervision (1 week)
- 2004-06: Aeolian Islands, Italy, field seminar (1 week); Alps, France and Italy, field course (1week); Cap Creus, Spain, field course (1 week); Chaîne des Puys, France, reflection seismology short course (3 days); Ardèche, France, field course (1 week); Corbière, France, field course (1 week); Pic Saint Loup, France, field course (1 week)

Service & Outreach

- Reviewer for NSF EAR and NSF GeoPRISMS funding programs (2013-)
- Reviewer for several international journals: Nature Geoscience, Geology, Journal of Petrology, Chemical Geology, EPSL, Lithos, GCA (2009-)
- Seminar organization: In charge of the Solid Earth brownbag seminars at Cardiff University (2017)
- In charge of the experimental petrology lab at UC Davis (2015-16)
- Member of the Volcanology-Geochemistry-Petrology (VGP) student awards committee. Selection of the Outstanding Student Paper Awards for VGP at the AGU conferences. (2014-16)
- Primary advisor of a geoscience education project: "Building" 3D visualization skills in mineralogy (2016)
- Co-Convener of the session 04f «Mantle Melting in Earth and Planetary Interiors», Goldschmidt2016, Yokohama, JP. (2016)
- Organization and supervision of the “Petrology and Mineralogy” stand for the UC Davis Picnic Day (2016)
- Primary Convener and chair of session #7653 “The origin of basalt magmatism”, AGU Fall Meeting, San Francisco, CA (2015)
- Postdoc representative for the Campus Life Committee at LDEO (2014-15)

- Development of the activity “Chemistry can break rocks!” for the LDEO Open House (2014)
- Seminar organization. In charge of the “fluid-rock deformations” seminar at LDEO - weekly reading groups and discussions (2014)
- OSPA Judge (Outstanding Student Paper Awards) at the AGU Fall Meetings (2011-14)
- PhD student delegate at the OPGC (Observatoire de Physique du Globe de Clermont-Ferrand) scientific council (2007-2009)
- Seminar organization: In charge of internal seminars of the experimental petrology division (X-pots) of the Laboratoire Magmas and Volcans (2007-2009)

Professional memberships

American Geophysical Union; IAVCEI; EAG

International publications:

Summary: 8 papers published, 1 submitted, 4 in preparation, total citations 243, h=7, *students

[9] **Lambart S.**, Savage H. M., *Robinson, B.G., Kelemen P.B. (submitted). Experimental investigation of the pressure of crystallization of Ca(OH)₂: Implications for the reactive-cracking process.

[8] **Lambart S.** (2017) No direct contribution of recycled crust in Icelandic basalts. In press in *Geochemical Perspective Letters*.

[7] **Lambart S.**, Baker M.B., Stolper E.M (2016) Role of pyroxenite in basalt genesis: Melt-PX, a melting parameterization for mantle pyroxenites at 0.9-5 GPa. *Journal of Geophysical Research – Solid Earth*, 121. doi: 10.1002/2015JB012762. **Selected for AGU Research Spotlight and Editor’s Highlights.**

[6] Laporte D., **Lambart S.**, Schiano P., Ottolini L. (2014) Experimental derivation of nepheline syenite and phonolite liquids by partial melting of upper mantle peridotites. *Earth and Planetary Science Letters*, 404:319-331. doi: 10.1016/j.epsl.2014.08.002.

[5] Shorttle O., Maclennan J., **Lambart S.** (2014), Quantifying lithological variability in the mantle. *Earth and Planetary Sciences Letter*, 395(1):24-40. doi: 10.1016/j.epsl.2014.03.040.

[4] **Lambart S.**, Laporte D., Schiano P. (2013), Markers of the pyroxenite contribution on the major-element compositions of oceanic basalts: review of the experimental constraints. *Lithos*, Invited Review, 160: 14-36, doi:10.1016/j.lithos.2012.11.018.

[3] **Lambart S.**, Laporte, D., Provost A., Schiano, P. (2012), Fate of pyroxenite-derived melts in the peridotitic mantle: Thermodynamic and experimental constraints. *Journal of Petrology*, 53(3): 451-476. doi: 10.1093/petrology/egr068.

[2] **Lambart S.**, Laporte, D., Schiano, P. (2009), An experimental study of pyroxenite partial melts at 1 and 1.5 GPa: Implications for the major-element composition of Mid-Ocean Ridge Basalts. *Earth and Planetary Science Letters*, 288: 335-347. doi: 10.1016/j.epsl.2009.09.038.

[1] **Lambart S.**, Laporte, D., Schiano, P. (2009), An experimental study of focused magma transport and basalt-peridotite interactions beneath mid-ocean ridges: implications for the generation of primitive MORB compositions. *Contributions to Mineralogy and Petrology*, 157: 429-451. doi 10.1007/s00410-008-0344-7.

In preparation:

[10] **Lambart S.**, The importance of the melting process for quantifying mantle heterogeneity.

[11] *Payré V., **Lambart S.**, Baker M.B., Stolper E.M, Composition of basaltic lavas sampled in the deepest part (3098-3506 mbsl) of phase-2 of the Hawaii Scientific Drilling Project: Implication for mantle source and

magma degassing.

[12] Gaudio S. J., *Ajoku C., Mccarty B., **Lambart S.** "Building" 3D visualization skills in mineralogy.

[13] **Lambart S.**, Lissenberg J., *Cook M., **Lambart S.** Mantle heterogeneity: What are the MORBS not telling us?

Published abstract since 2010 (* denote the speaker)

[15] ***Lambart S.**, Batch vs Continuous Melting: Importance of the Melting Regime in Quantifying the Mantle Heterogeneity. Goldschmidt, Paris, France, August **2017**. **Invited talk**

[14] *Skarbek R. M., Savage H. M., Kelemen P. B., **Lambart S.**, Robinson B., Experiments on the effects of confining pressure during reaction-driven cracking. AGU FM, San Francisco, Calif., #MR41A-2680, Dec. **2016**. **Poster**

[13] Gaudio S. J., *Ajoku C., McCarthy B., **Lambart S.** "Building" 3D visualization skills in mineralogy. AGU FM, San Francisco, Calif., #ED21A-0760, Dec. **2016**. **Poster**

[12] ***Lambart S.**, Quantifying Mantle Heterogeneity beneath Iceland: Melting Process and Buoyancy. Goldschmidt, Yokohama, Japan, June **2016**. **Talk**

[11] ***Lambart S.**, The importance of the melting process for quantifying mantle heterogeneity. AGU, San Francisco, Calif., Dec. **2015**. **Poster**

[10] ***Lambart S.**, Melt-rock interactions: infinite source of new mantle lithologies. GSA meeting, Baltimore, Maryland, Nov. **2015**. **Invited talk**

[9] **Lambart S.**, Savage H.M., *Kelemen P.B., Experimental investigation of the pressure of crystallization of $\text{Ca}(\text{OH})_2$: implication for the reactive-cracking process. 5th ACEME, New York, New York, June **2015**. **Keynote presentation**

[8] ***Lambart S.**, Kelemen P.B. A coupled geochemical and geodynamical approach for mantle melting beneath Hawaii, AGU, San Francisco, Calif., #V33C-4885, Dec. **2014**. **Poster**

[7] Savage H., ***Lambart S.**, Kelemen P.B., Koczynski T.A., Experimental investigation of the pressure of crystallization, AGU, San Francisco, Calif., #V23A-4768, Dec. **2014**. **Poster**

[6] ***Lambart S.**, Baker M.B., Stolper E.M. PX-MELT: a predictive model for the melting of pyroxenites in the mantle, 6th International Orogenic Lherzolite Conference, Marrakech, Morocco, May **2014**. **Talk**

[5] *Shorttle O., **Lambart S.**, Maclennan J. Quantifying the lithological and thermal properties of the mantle using basalt chemistry, AGU, San Francisco, Calif., #DI21A-2246, Dec. **2013**. **Poster**

[4] *Shorttle O., **Lambart S.**, Maclennan J. Constraining the amount of recycled material in the mantle source from basalt chemistry. EGU, Vienne, Austria, #EGU2013-8312-2, Apr. **2013**. **Invited talk**

[3] ***Lambart S.**, Baker M.B., Stolper E.M. Parameterizing P - T - F relationships for mantle pyroxenites at 0.9–5 GPa, Fall Meeting, AGU, San Francisco, Calif., #DI51A-2343, Dec. **2012**. **Poster**

[2] ***Lambart S.**, Baker M.B., Stolper E.M. Parameterizing near-solidus temperatures of mantle pyroxenites and eclogites, Fall Meeting, AGU, San Francisco, Calif., #V32B-04, Dec. **2011**. **Talk**

[1] ***Lambart S.**, Laporte D., Schiano P., Provost A. Mantle pyroxenites as source of the compositional variability in alkali basalts?, AGU, San Francisco, Calif., #V13F-01, Dec. **2010**. **Invited talk**

Last update: December 5th, 2017