Cedrick O'Shaughnessy

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CURRENT POSITION

Postdoctoral Fellow Since Jan 2020

Meldrum Lab Group

Crystallisation in the Real World

Department of Chemistry

University of Leeds, Leeds, United Kingdom

EDUCATION

University of Toronto, Toronto, Ontario, Canada

- Ph.D. in Earth Sciences — Sep 2013 – Jun 2019
  - Thesis: The structure of alkali silicate glasses and melts: a multi-spectroscopic approach
  - Adviser: Prof. Grant S. Henderson
  - Focus: Amorphous materials, Raman spectroscopy, X-ray absorption spectroscopy.

McGill University, Montreal, Quebec, Canada

- M.Sc. in Earth & Planetary Sciences — Sep 2010 – Nov 2012
  - Thesis: The failure of silicate foam caused by bubble expansion
  - Adviser: Prof. Don R. Baker
- B.Sc. in Earth & Planetary Sciences — Sep 2007 – Jun 2010
  - Thesis: The co-evolution of Pb and S isotopes in galena
  - Adviser: Prof. Boswell A. Wing

PUBLICATIONS

JOURNALS

[13] **O'Shaughnessy, C.**, Henderson, G. S., Nesbitt, H. W., Bancroft, G. M., Neuville, D. R. (2020) The influence of modifier cations on the Raman stretching modes of Q^n species in alkali silicate glasses. Journal of the American Ceramic Society *Special Issue*

[12] Baker, D. R., Brun, F., Mancini, L., Fife, J. L., LaRue, A., **O'Shaughnessy, C.**, Hill, R. J., Polacci, M. (2019) The importance of pore throats in controlling the permeability of magmatic foams. Bulletin of Volcanology 81

[11] Nesbitt, H. W., **O'Shaughnessy, C.**, Henderson, G. S., Michael Bancroft, G., Neuville, D. R. (2019) Factors affecting line shapes and intensities of Q^3 and Q^4 Raman bands of Cs silicate glasses. Chemical Geology 505, 1–11

[10] **O'Shaughnessy, C.**, Henderson, G. S., Moulton, B. J. A., Zuin, L., Neuville, D. R. (2018) The effect of alkaline-earth substitution on the Li K-edge of lithium silicate glasses. Journal of Non-Crystalline Solids 500, 417–421

[9] **O'Shaughnessy, C.**, Henderson, G. S., Moulton, B. J. A., Zuin, L., Neuville, D. R. (2018) A Li K-edge XANES study of salts and minerals. Journal of Synchrotron Radiation 25, 543–551

[8] Bancroft, G. M., Nesbitt, H. W., Henderson, G. S., **O'Shaughnessy, C.**, Withers, A. C., Neuville, D. R. (2018) Lorentzian dominated lineshapes and linewidths for Raman symmetric stretch peaks (800-1200 cm^{-1}) in Q^n (n = 1-3) species of alkali silicate glasses/melts. Journal of Non-Crystalline Solids 484, 72–83

[7] Nesbitt, H. W., Bancroft, G. M., Henderson, G. S., Richet, P., **O'Shaughnessy, C.** (2017) Melting, crystallization, and the glass transition: Toward a unified description for silicate phase transitions. American Mineralogist 102, 412–420

[6] **O'Shaughnessy, C.**, Henderson, G. S., Nesbitt, H. W., Bancroft, G. M., Neuville, D. R. (2017) Structure-property relations of caesium silicate glasses from room temperature to 1400 K: Implications from density and Raman spectroscopy. Chemical Geology 461, 82–95

[5] Nesbitt, H., Henderson, G., Bancroft, G., **O'Shaughnessy, C.** (2017) Electron densities over Si and O atoms of tetrahedra and their impact on Raman stretching frequencies and Si-NBO force constants. Chemical Geology 461, 65–74

[4] Moulton, B. J., Henderson, G. S., Sonneville, C., **O'Shaughnessy, C.**, Zuin, L., Regier, T., de Ligny, D. (2016) The structure of haplobasaltic glasses investigated using X-ray absorption near edge structure (XANES) spectroscopy at the Si, Al, Mg, and O K-edges and Ca, Si, and Al $L_{2,3}$-edges. Chemical Geology 420, 213–230

[3] Su, W., Baker, D. R., Pu, L., Bai, L., Liu, X., **O'Shaughnessy, C.** (2015) Chlorine-hydroxyl diffusion in pargasitic amphibole. American Mineralogist 100, 138–147

[2] **O'Shaughnessy, C.**, Brun, F., Mancini, L., Fife, J. L., Baker, D. R. (2014) Modeling the failure of magmatic foams with application to Stromboli volcano, Italy. Earth and Planetary Science Letters 403, 246–253

[1] Baker, D. R., Brun, F., **O'Shaughnessy, C.**, Mancini, L., Fife, J. L., Rivers, M. (2012) A four-dimensional X-ray tomographic microscopy study of bubble growth in basaltic foam. Nature Communications 3, 1135

CONFERENCES

[8] **O'Shaughnessy, C.**, Henderson, G. S., Moulton, B. J., Zuin, L., Neuville, D. (2018) Experimental investigation of the Li K-edge of Lithium Silicate glasses. Internation Mineralogical Association Meeting

[7] **O'Shaughnessy, C.**, Henderson, G. S., Nesbitt, H. W., Bancroft, G. M., Neuville, D. (2017) Investigating the structure of alkali silicate glasses using Raman spectroscopy. Goldschmidt

[6] **O'Shaughnessy, C.**, Henderson, G. S., Moulton, B. J., Zuin, L., Neuville, D. (2016) The structure of lithium silicate glasses: insights from XANES and DFT. Non Crystalline Materials

[5] **O'Shaughnessy, C.**, Neuville, D., Nesbitt, H. W., Bancroft, G. M., Henderson, G. S. (2015) The structure of alkali silicate glasses and melts. Physics of Non-Crystalline Solids Conference

[4] **O'Shaughnessy, C.**, Neuville, D., Nesbitt, H. W., Bancroft, G. M., Henderson, G. S. (2015) The structure of alkali silicate glasses and melts. Silicate Melt Workshop

[3] Baker, D., Brun, F., **O'Shaughnessy, C.**, Fife, J., Rivers, M., Polacci, M., Arzilli, F., Giordano, D., Mancini, L. (2014) 4D X-ray mCT to study the growth of gas bubbles in magma. Advanced X-Ray Tomography: Experiment, Modeling, and Algorithms Workshop

[2] **O'Shaughnessy, C.**, Baker, D. R. (2011) The failure of silicate foam caused by bubble expansion: investigation by X-ray microtomography. GAC MAC Conference

[1] **O'Shaughnessy, C.**, Baker, D. R. (2011) The failure of basaltic foam caused by bubble expansion. GEOTOP Conference

AWARDS & SCHOLARSHIPS

- **Laurence Curtis Teaching Assistant Award** 2017 – 2018
  Earth Sciences department, University of Toronto – ($200)
  For excellence in teaching at the Undergraduate level.
- **Queen Elizabeth II GSST Scholarship** 2016 – 2017
  University of Toronto – ($15,000)
  Doctoral Scholarship in Science and Technology.
- **Peacock Prize** 2016
  Walker Mineralogical Club – ($1,500)
  For excellence in the study of mineralogy.
- **CLSI Graduate and Post-Doctoral Student Travel Support** 2016
  Canadian Light Source Inc. – ($1,000)
  Support for travel to the synchrotron.
- **Ontario Graduate Scholarship** 2015 – 2016
  University of Toronto – ($15,000)
  For academic achievement and contributions to science.
- **MAC Travel Grant** 2015
  Mineralogical Association of Canada – ($1,200)
  To conduct high-temperature Raman spectroscopy at l'Institut de Physique du Globe de Paris (IPGP), France.

- **Queen Elizabeth II GSST Scholarship** 2014 – 2015
  University of Toronto – ($15,000)
  Doctoral Scholarship in Science and Technology.
- **CLSI Graduate and Post-Doctoral Student Travel Support** 2014
  Canadian Light Source Inc. – ($1,000)
  Support for travel to the synchrotron.
- **D. H. Gorman Scholarship** 2013
  Earth Sciences department, University of Toronto – ($8,000)
  For the study of mineralogy.
- **GAC Best Student Paper** 2012
  Geological Association of Canada
  For contribution to: Baker et al. (2012).
- **GAC Geophysics Award** 2011
  Geological Association of Canada – ($500)
  Outstanding student presentation in Geophysics during GAC MAC conference.
- **Louise Bernier Prize** 2011
  GEOTOP Consortium – ($500)
  Best oral presentation during the GEOTOP conference.
- **Science Undergraduate Research Award (SURA)** 2011
  National Science and Engineering Research Council (NSERC) of Canada – ($5,000)
  Undergraduate thesis scholarship.

PROFESSIONAL AFFILIATIONS & ACTIVITIES

- **Reviewer for Journal of Non-Crystalline Solids** Since 2017
- **President of the Association of Graduate Earth Science Students (AGESS)** 2016 – 2017
  University of Toronto
- **Departmental Representative at the Graduate Student Union (UTGSU)** 2016 – 2017
  University of Toronto
- **Member of the Graduate Affairs Committee (GAC)** 2016 – 2017
  Earth Sciences department, University of Toronto
- **Member of Science Outreach** 2014 – 2018
  Earth Sciences department, University of Toronto

[*Last updated on 2020-03-30*]