Curriculum Vitae
William F. McDonough

Notarization. I have read the following and certify that this *curriculum vitae* is a current and accurate statement of my professional record.

Signature_____ Date_____

Curriculum Vitae

I. PERSONAL INFORMATION

Name: William F. McDonough, (Appointment to Department 2000)
Title: Professor

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Born: September 1, 1954,
Boston, Massachusetts

Education:	Ph.D. 1988	Geochemistry, Research School of Earth Science, Australian National University
	M.S., 1983	Geochemistry, Sul Ross State University, Alpine, TX, USA
	B.A., 1979	Anthropology, University of Massachusetts, Boston, MA, USA
Employment:	2011	Guest Professor, China University of Geosciences (Wuhan), China
	2010-present	Affiliate Professor, University of Maryland, Department of Chemistry
	2005-present	Professor, University of Maryland, Department of Geology
	2000-2005:	Associate Professor, University of Maryland, Department of Geology
	1994-2000:	Research Associate, Harvard University, Earth & Planetary Sciences
	1995:	Lecturer, Boston University, Dept. of Earth Sciences
	1989-1994:	Research Fellow, The Australian National University Research School of Earth Science
	1987-1989:	Von Humboldt Fellow, Max-Planck-Institute fur Chemie, Mainz, Germany
	1978-1980:	Consultant Geologist, Private practice, Oregon,

a. Books

†Undergraduate student, *Graduate student advised by McDonough, **other graduate student, ** post-doc advised by McDonough. Senior author is first author.

i. Books Edited

Van der Hilst, R. and **McDonough, W.F.** (1999) Composition, Deep Structure and Evolution of Continents, (Editors) Developments in Geotectonics, 24, Elsevier, 300 pp.

McDonough, W.F. (2014) Analytical Geochemistry: Inorganic Instrumental Analysis, (Editor) Treatise in Geochemistry 2nd Edition, volume 15, Elsevier, http://dx.doi.org/10.1016/B978-0-08-095975-7.01426-1

ii. Chapters in Books

1. Francis, P.W., **McDonough, W.F.**, Hammill, M., O'Callaghan, L.J. and Thorpe, R.S. (1984) The Cerro Purico shield complex, North Chile. *In* R.S. Harmon and B.A. Barreiro (eds.) Andean Magmatism Chemical and Isotopic Constraints *Shiva Publishing Ltd*, Cheshire, pp. 106-123.
2. Coombs, D.S., Cas, R.A., Kawachi, Y., Landis, C.A., **McDonough, W.F.** and Reay, A. (1986) Cenozoic volcanism in North, East, and Central Otago. *In* I. E. M. Smith (ed.) Late Cenozoic Volcanism in New Zealand *Roy. Soc. N.Z. Bull*., 23: 278-312
3. **McDonough, W.F.** and Frey, F.A. (1989) Rare Earth Elements in Upper Mantle Rocks. *In*: B.R. Lipin and G.A. McKay (eds.) Geochemistry and Mineralogy of Rare Earth Elements, *Reviews in Mineralogy*, Vol. 21, pp. 99-145.
4. Sutherland, F.L., Ewart, A. Raynor, L.R., Hollis, J.D. and **McDonough, W.F.** (1989) Tertiary basaltic magmas and the Tasmanian lithosphere. *In*: C.F. Burrett and E.L. Martin (eds.) Geology and Mineral Resources of Tasmania, *Geol. Soc. Australia*, No. 15, pp. 386-398.
5. Sun, Shen-su, **McDonough, W.F.** and Ewart, A. (1989) Four Component Model for East Australian Basalts. *In*: R.W. Johnson, J. Knutson and S.R. Taylor (eds.) Intraplate Volcanism in Eastern Australia and New Zealand, *Cambridge Univ. Press*, Cambridge pp. 333-347.
6. Sun, Shen-su and **McDonough, W.F.** (1989) Chemical and Isotopic Systematics of oceanic basalts: implications for Mantle Composition and Processes. *In* A.D. Saunders and M.J. Norry (eds.) Magmatism in the Ocean Basins, *Spec. Publ. Vol. Geol. Soc. Lond*., No. 42, pp. 313-345.
7. **McDonough, W.F.**, Rudnick, R.L. and McCulloch, M.T. (1991) The isotopic and chemical composition of the lower portion of the eastern Australian lithosphere. *In* B. Drummond (ed.) Eastern Australian Lithosphere *Geol. Soc. Aust. Spec. Publ*., 17: 163-188.
8. Rudnick, R.L., **McDonough, W.F.** and Orpin†, A. (1994) Northern Tanzanian peridotite xenoliths: a comparison with Kaapvaal peridotites and inferences on metasomatic interactions. *In* H.O.A. Meyer and O. Leonardos (eds.) Kimberlites, Related Rocks and Mantle Xenoliths, Vol. 1 C.P.R.M., Brasilia, p. 336-353.
9. **McDonough, W.F.** (1994) Chemical and isotopic systematics of continental lithospheric mantle. *In* H.O.A. Meyer and O. Leonardos (eds.) Kimberlites, Related Rocks and Mantle Xenoliths, Vol. 1 C.P.R.M., Brasilia, p. 478-485.
10. **McDonough, W.F.** and Rudnick, R.L., (1998) Mineralogy and Composition of the Upper Mantle. In: R. Hemley (Editor) Ultrahigh-Pressure Mineralogy: Physics and Chemistry of the Earth's Deep Interior, *Reviews in Mineralogy*, Vol. 37, pp. 138-164.
11. **McDonough, W.F.**, (1999) Earth's Core. In: C. P. Marshall and R. F. Fairbridge (Eds.) The Encyclopedia of Geochemistry. *Kluwer Academic Publ.*, Amsterdam, pp. 151-156.

12. **McDonough, W.F.** (2001) The Composition of the Earth. In R. Teisseyre and E. Majewski (Eds.) Earthquake thermodynamics and phase transformations in the Earth's interior. *Academic Press*, San Diego, pp. 3-23. dx.doi.org/10.1016/S0074-6142(01)80077-2

13. **McDonough, W.F.** (2003) Compositional Model for The Earth's Core, 547-568. In The Mantle and Core (ed. R.W. Carlson.) Vol. 2 Treatise on Geochemistry (eds. H.D. Holland and K.K. Turekian), *Elsevier-Pergamon*, Oxford. 10.1016/B0-08-043751-6/02015-6

14. **McDonough W. F.** (2007) The composition of the Earth's core. In: The *Encyclopedia of Geomagnetism and Paleomagnetism*, D. Gubbins (ed.) Springer, 77-80.

15. Aulbach[**], S., Rudnick, R.L. and **McDonough, W.F.** (2010) Evolution of the lithospheric mantle beneath the East African Rift in Tanzania and its signatures in rift magmas, In (Beccaluva, L., Bianchini, G. and Wilson, M., eds.) Volcanism and Evolution of the African Lithosphere, Geol. Soc. America Special Paper No. 478, pp. 105-126. doi:10.1130/2011.2478(06)

16. **McDonough, W.F.** (2014) Compositional Model for The Earth's Core, 547-568. In The Mantle and Core (ed. R.W. Carlson.) Vol. 3 Treatise on Geochemistry (eds. H.D. Holland and K.K. Turekian), *Elsevier-Pergamon*, Oxford. dx.doi.org/10.1016/B978-0-08-095975-7.00215-1

17. Han, R., Ludhova, L. and **McDonough, W.F.** (2016) Geoneutrino, JUNO Yellowbook, (editors of Chapter 8), 18 pp. Neutrino Physics with JUNO (Jinping Underground Neutrino Observatory). (http://arxiv.org/abs/1507.05613)

18. **McDonough, W.F.** (2016) The composition of the lower mantle and core, Chapter 12: 145-159, *Geophysical Monograph Series* Deep Earth: Physics and Chemistry of the Lower Mantle and Core (ed., Hidenori Terasaki and Rebecca Fischer), AGU-Wiley, Washington DC. ISBN: 978-1-118-99247-0 (http://www.wiley.com/WileyCDA/WileyTitle/productCd-1118992474.html).

19. Engel[†], K. and **McDonough, W.F.** (2016) Geochemical Models of the Earth and Mantle Radioactivity, *Chapter 3*, Geo-neutrino (editor, Livia Ludhova), Open Academic Press ISBN 978-83-944520-1-8 (http://openacademicpress.de/ojs2/index.php/gn)

20. Iñañez, J., Bellucci, J., Martín, J. G., Ash, R., **McDonough, W.F.** and Speakman, R. J. (2016) Pb isotopic composition of Panamanian Colonial Majolica by LA-ICP-MS. In *Recent Advances in Laser Ablation ICP-MS for Archaeology* (Editors L. Dussubieux, B. Gratuze and M. Golitko). Springer-Verlag. (*in press*)

b. Articles in Refereed Journals

Annotations: [†]undergraduate student, *graduate student, [#]graduate student that I did not supervise, or **post-doc that I supervised

1. Waibel, A.F. and **McDonough, W.F.** (1977) A new fossil locale in south central Kenya. *Nyame Akuma*, 11:16–17.

2. **McDonough, W.F.**, Waibel, A.F. and Gannett, M.W. (1984) The reinterpretation of Leone Lake sediments as a pyroclastic surge deposit and its tectonic significance. *Journal of Volcanology and Geothermal Research*, 20: 101-115.

3. **McDonough, W.F.** and Nelson, D.O. (1984) Geochemical constraints on magma processes in a peralkaline system: Paisano volcano, west Texas. *Geochimica et Cosmochimica Acta*, 48: 2443-2455.

4. **McDonough, W.F.**, McCulloch, M.T. and Sun, S.-S. (1985) Isotopic and geochemical systematics in Tertiary-Recent basalts from southeastern Australia and implications for the evolution of the sub-continental lithosphere. *Geochimica et Cosmochimica Acta*, 49: 2051-2067.

5. Rudnick, R.L., **McDonough, W.F.**, McCulloch, M.T. and Taylor, S.R. (1986) The chemical and isotopic composition of lower crustal xenoliths from Queensland, Australia: evidence for deep crustal assimilation and fractionation of continental basalts. *Geochimica et Cosmochimica Acta*, 50: 1099-1115.

6. **McDonough, W.F.** and McCulloch, M.T. (1987) The southeast Australian Lithospheric Mantle: Implications for its Growth and Evolution. *Earth and Planetary Science Letters*, 86: 327-340.

7. **McDonough, W.F.**, Jochum, K.P., Palme, H. and Spettel, B. (1989) Sampling the lithosphere. *Nature*, 342: 743.

8. Jochum, K.P., **McDonough, W.F.**, Palme, H. and Spettel, B. (1989) Compositional constraints on the continental lithospheric mantle from trace elements in spinel peridotite xenoliths. *Nature*, 340: 548-550 (*with News and Views article*).

9. **McDonough, W.F.** (1990) Constraints on the composition of the continental lithospheric mantle. *Earth and Planetary Science Letters*, 101: 1-18.

10. Loock*, G., **McDonough, W.F.**, Goldstein, S.L. and Hofmann, A.W. (1990) Isotopic compositions of volcanic glasses from the Lau Basin. *Marine Mining*, 9: 235-245.

11. Briggs, R.M. and **McDonough, W.F.** (1990) Contemporaneous convergent margin and intraplate magmatism, North Island, New Zealand. *Journal of Petrology*, 31: 813-851.

12. **McDonough, W.F.** (1990) Comment on "Abundance and distribution of gallium in some spinel and garnet lherzolites" by D.B. McKay and R.H. Mitchell. *Geochimica et Cosmochimica Acta*, 54: 471-47.

13. **McDonough, W.F.** and Chauvel, C. (1991) Sample contamination explains the Pb isotopic composition of some Rurutu island and Sasha seamount basalts. *Earth and Planetary Science Letters*, 105: 397-404.

14. **McDonough, W.F.** (1991) Partial melting of subducted oceanic crust and isolation of its residual eclogitic lithology. *Philosophical Transactions of The Royal Society*, A 335: 407-418.

15. **McDonough, W.F.**, Stosch, H.-G. and Ware, N. (1992) Distribution of Titanium and the Rare Earth Elements between peridotitic minerals. *Contributions to Mineralogy and Petrology*, 110: 321-328.

16. **McDonough, W.F.**, Sun, S.-S., Ringwood, A.E., Jagoutz, E. and Hofmann, A.W. (1992) K, Rb and Cs in the Earth and Moon and the evolution of the Earth's mantle. *Geochimica et Cosmochimica Acta*, 56: 1001-1012.

17. **McDonough, W.F.** and Ireland, T.R. (1993) Intraplate origin of komatiites inferred from trace elements in glass inclusions. *Nature*, 365: 432-434 (*with News and Views article*).

18. Rudnick, R.L., **McDonough, W.F.** and Chappell, B.W. (1993) Carbonatite metasomatism in the Northern Tanzanian mantle: petrographic and geochemical characteristics. *Earth and Planetary Science Letters*, 114: 463-475.

19. Canil, D., O'Neill, H. St. C., Pearson, D.G., Rudnick, R.L., **McDonough, W.F.** and Carswell, D.A. (1994) Ferric iron in peridotites and mantle oxidation states. *Earth and Planetary Science Letters*, 123: 205-220.

20. **McDonough, W.F.**, Ringwood, A.E., Sun, S.S., Jagoutz, E. and Hofmann, A.W. (1994) Comments on "Rubidium and Cesium in the Earth and Moon by J.H. Jones and M.J. Drake". *Geochimica et Cosmochimica Acta*, 58: 1385-1386.

21. **McDonough, W.F.** and Sun, S.S. (1995) The composition of the Earth. *Chemical Geology*, 120: 223-254 doi.org/10.1016/0009-2541(94)00140-4

22. Chauvel, C., **McDonough, W.F.**, Guille, G., Maury, R. and Duncan, R. (1997) Contrasting old and young volcanism in Rurutu Island, Austral. *Chemical Geology*, 139: 125-143.

23. Rudnick, R.L., **McDonough, W.F.** and O'Connell, R.J. (1998) Thermal structure, thickness and composition of continental lithosphere. *Chemical Geology*, 145: 399-415.

24. Eggins, S.M., Rudnick, R.L. and **McDonough, W.F.** (1998) The composition of peridotites and their minerals: a laser-ablation ICP-MS study. *Earth and Planetary Science Letters*, 154: 53-71.

25. Barth*, M.G., **McDonough, W.F.**, and Rudnick, R.L. (2000) Tracking the budget of Nb and Ta in the continental crust. *Chemical Geology*, 165: 197-213.

26. Horn**, I., Rudnick, R.L. and **McDonough, W.F.** (2000) Precise elemental and isotopic ratio determination by combined solution nebulization and laser ablation ICP-MS: application to U/Pb geochronology. *Chemical Geology*, 167: 403-426.

27. Jochum, K.P., Dingwell, D.B., Rocholl, A., Stoll, B., Hoffman, A.W., Becker, S., Besmehn, A., Bessette, D., Dietze, H.-J., Dulski, P., Erzinger, J., Hellebrand, E., Hoppe, P., Horn**, I., Janssens, K., Jenner, G., Klein, M., **McDonough, W.F.**, Maetz, M., Mezger, K., Münker, C., Nikogosian, I.K., Pickhardt, C., Raczek, I., Rhede, D., Seufert, H.M., Simakin, S.G., Sobolev, A.V., Spettel, B., Straub, S., Vincze, L., Wallianos, A., Weckwerth, G., Weyer, S., Wolf, D. and Zimmer, M. (2000) The Preparation and Preliminary Characterization of Eight Geological MPI-DING Reference Glasses for *In-Situ* Microanalysis. *Geostandards Newsletter*, 24: 109-145.

28. Lee*, C.T., Rudnick, R.L., **McDonough, W.F.** and Horn**, I. (2000) Petrochemical investigation of carbonates in peridotite xenoliths from northeastern Tanzania. *Contributions to Mineralogy and Petrology*, 139: 470-484.

29. Rudnick, R.L., Barth*, M.G., Horn**, I., **McDonough, W.F.**, (2000) Rutile-Bearing Refractory Eclogites: Missing Link Between Continents and Depleted Mantle, *Science*, 287: 278-281

30. Yin, Q.Z., Jacobsen, S.B., **McDonough, W.F.,** Horn**, I., Petaev, M.I. and Zipfel, J. (2000) Supernova sources and the ^{92}Nb-^{92}Zr *p*-process chronometer. *The Astrophysical Journal*, 535: L49-L53.

31. Barth*, M.G., Rudnick, R.L., Horn**, I., **McDonough, W.F.**, Spicuzza, M.J., Valley, J.W. and Haggerty, S.E. (2001) Geochemistry of xenolithic eclogites from West Africa, Part I: a link between low MgO eclogites and Archean crust formation. *Geochimica et Cosmochimica Acta*, 65: 1499-1527.

32. Pyle#, J.M., Spear, F.S., Rudnick, R.L. and **McDonough, W.F.** (2001) Monazite-xenotime and monazite-garnet equilibrium in a prograde pelite sequence. *Journal of Petrology*, 42: 2082-2107.

33. Staudigel, GERM Steering Committee, H. Staudigel, F. Albarede, D. L. Anderson, L. Derry, **B. McDonough**, H. F. Shaw, W. White, and A. Zindler (2001), Electronic data publication in geochemistry: A plea for "full disclosure", *Geochem. Geophys. Geosyst.*, 2(10), doi:10.1029/2001GC000234.

34. Yin, Q.-Z., Jacobsen, S.B., Lee*, C.T., **McDonough, W.F.**, Rudnick, R.L. and Horn**, I (2001) A gravimetric K_2OsCl_6 standard: Application to precise and accurate Os spike calibration. *Geochimica et Cosmochimica Acta*, 65: 2113-2128.

35. Sattari#, P., Brenan, J.M., Horn**, I. and **McDonough, W.F.** (2002) Experimental constraints on the sulfide-and chromite-silicate melt partitioning behavior of Rhenium and Platinum-Group elements. *Economic Geology*, 97: 385-398.

36. Michael, P.J., **McDonough, W.F.**, Nielsen, R.L. and Cornell, W.C. (2002) Depleted Melt Inclusions in MORB Plagioclase: Messages from the Mantle or Mirages from the Magma Chamber? *Chemical Geology*, 183: 43-61.

37. Gao, S., Rudnick, R.L., Carlson, R.W., **McDonough, W.F.** and Liu, Y.-S. (2002) Re-Os evidence for replacement of ancient mantle lithosphere beneath the North China Craton. *Earth and Planetary Science Letters*, 198: 307-322.

38. Barth*, M.G., Rudnick, R.L., Horn**, I., **McDonough, W.F.**, Spicuzza, M.J., Valley, J.W. and Haggerty, S.E. (2002) Geochemistry of xenolithic eclogites from West Africa, Part II: origins of the high MgO eclogites. *Geochimica et Cosmochimica Acta*, 66: 4325-4345.

39. Barth*, M.G., Rudnick, R.L., Carlson, R.W., Horn**, I. and **McDonough, W.F.** (2002) Re-Os and U-Pb geochronological constraints on the eclogite-tonalite connection in the Archean Man Shield, West Africa. *Precambrian Research*, 118: 267-283.

40. Brenan, J. M., **McDonough, W.F.** and Dalpe, C. (2003) Experimental constraints on the partitioning of rhenium and some platinum-group elements between olivine and silicate melt. *Earth and Planetary Science Letters*, 212: 135-150.

41. Staudigel, H., Helly, J., Koppers, A. A. P., Shaw, H. F., **McDonough, W. F.**, Hofmann, A. W., Langmuir, C. H., Lehnert, K., Sarbas, B., Derry, L. A., Zindler, A. (2003) Electronic data publication in geochemistry. *Geochem. Geophys. Geosyst*, 4(3), 8004, doi:10.1029/2002GC000314.

42. Zack**, T., Tomascak, P.B., Rudnick, R.L., Dalpe, C. and **McDonough, W.F.** (2003) Extremely light Li in orogenic eclogites: The role of isotope fractionation during dehydration in subducted oceanic crust *Earth and Planetary Science Letters*, 208: 279-290.

43. Wiebe, R.A., Manon, M.R., Hawkins, D.P. and **McDonough, W.F.**, (2004) Late stage mafic injection and thermal rejuvenation of the Vinalhaven Granite, coastal Maine. *Journal of Petrology*, 45: 2133-2153, doi:10.1093/petrology/egh050.

44. Teng*, F.-Z., **McDonough, W.F.,** Rudnick, R.L., Dalpe, C., Tomascak, P.B., Chappell, B.W. and Gao, S. (2004) Lithium Isotopic Composition and Concentration of the Upper Continental Crust. *Geochimica et Cosmochimica Acta*, 68: 4167-4178.

45. Rudnick, R.L., Gao, S., Ling, W., Liu, Y.-S. and **McDonough, W.F.** (2004) Petrology and geochemistry of spinel peridotite xenoliths from Hannuoba and Qixia, North China craton, In (Mitchell, R., Scott-Smith, B., Heaman, L., Stachel, T., eds.) Proceedings of the Eighth International Kimberlite Conf., *Lithos*, 77: 609-637.

46. Brenan, J.M., **McDonough, W.F.** and Ash, R. (2005) An experimental study of the solubility and partitioning of iridium, osmium and gold between olivine and silicate melt. *Earth and Planetary Science Letters*, 237: 855-872.

47. Hall, J.M., Chan, L.H., **McDonough, W.F.** and Turekian, K.K. (2005) Determination of lithium isotopic composition of planktic foraminifera and its application as a paleo-seawater proxy. *Marine Geology*, 217: 255-265.

48. Keshav[**], S., Corgne[**], A., Gudfinnsson, G.H., Bizimis, M., **McDonough, W.F.** and Fei, Y. W. (2005) Kimberlite petrogenesis: Insights from clinopyroxene-melt partitioning experiments at 6 GPa in the CaO-MgO-Al_2O_3-SiO_2-CO_2 system. *Geochimica et Cosmochimica Acta*, 69: 2829-2845.

49. Walker, R.J., Brandon, A.D., Bird, J.M., Piccoli, P.M., **McDonough, W.F**. and Ash, R.D. (2005) ^{187}Os- ^{186}Os systematics of Os-Ir-Ru alloy grains from southwestern Oregon. *Earth and Planetary Science Letters*, 230: 211-226.

50. Huang[#], F., Lundstrom, C.C. and **McDonough, W.F.** (2006) Effect of melt structure on trace-element partitioning between clinopyroxene and silicic, alkaline, aluminous melts. *American Mineralogist* 91: 1385-1400.

51. Lundstrom, C.C., Sutton, A.L., Chaussidon, M., **McDonough, W.F.**, Ash, R (2006) Trace element partitioning between type BCAI melts and melilite and spinel: Implications for trace element distribution during CAI formation. *Geochimica et Cosmochimica Acta*, 70: 3421-3435.

52. Matthews*, K.A., **McDonough, W.F.**, and Grottoli, A.G. (2006) Cadmium measurements in coral skeleton using isotope dilution-inductively coupled plasma-mass spectrometry. *Geochem. Geophys. Geosyst*., 7, Q11021, doi:10.1029/2006GC001352.

53. Teng*, F.-Z., **McDonough, W.F.**, Rudnick, R.L. and Walker, R.J. (2006) Diffusion-driven extreme lithium isotopic fractionation in country rocks of the Tin Mountain pegmatite. Earth and Planetary Science Letters 243: 701-710.

54. Teng*, F.-Z., **McDonough, W.F.**, Rudnick, R.L., Walker, R. and Sirbescu, M.-L. C. (2006) Lithium isotopic systematics of granites and pegmatites from the Black Hills, South Dakota. *American Mineralogist*, 91: 1488-1499.

55. Wheeler[#], K.T., Walker, D., Fei, Y.W., Minarik, W.G. and **McDonough, W.F.** (2006) Experimental partitioning of uranium between liquid iron sulfide and liquid silicate: Implications for radioactivity in the Earth's core. *Geochimica et Cosmochimica Acta*, 70: 1537-1547.

56. Chabot, N.L., Saslow[†], S.A., **McDonough, W.F.** and McCoy T.J. (2007) The effect of Ni on iron meteorite crystallization. *Meteoritics and Planetary Science*, 42: 1735-1750.

57. Corgne[**], A., Keshav[**], S. Fei, Y. and **McDonough, W.F.** (2007) How much potassium is in the Earth's core? New insights from partitioning experiments. *Earth and Planetary Science Letters*, 256: 567-576.

58. Halama[**], R., **McDonough, W.F.**, Rudnick, R.L., Keller, J. and Klaudius, J. (2007) The Li isotopic composition of Oldoinyo Lengai: nature of the mantle sources and lack of isotopic fractionation during carbonatite petrogenesis. *Earth and Planetary Science Letters*, 254: 77-89.

59. Teng*, F.Z., **McDonough, W.F.**, Rudnick, R.L., and Wing, B. (2007). Limited lithium isotopic fractionation during progressive metamorphic dehydration in metapelites: A case study from the Onawa contact aureole, Maine. *Chemical Geology*, 239: 1-12.

60. Walker, R.J., Bohlke, J.K., **McDonough, W.F.** and Li*, J. (2007) Effects of mother lode-type gold mineralization on Os-187/Os-188 and platinum group element concentrations in peridotite: Alleghany district, California. *Economic Geology*, 102: 1079-1089.

61. Arévalo* Jr., R and **McDonough, W. F.** (2008) Tungsten geochemistry and implications for understanding the Earth's interior. *Earth and Planetary Science Letters*, 272: 656-665. doi:10.1016/j.epsl.2008.05.031

62. Aulbach[**], S., Rudnick, R.L. and **McDonough, W.F.** (2008) Li-Sr-Nd isotope signatures of the plume and cratonic lithospheric mantle beneath the margin of the rifted Tanzanian craton (Labait). *Contributions to Mineralogy and Petrology*, 155: 79-92.

63. Carmichael[#], S. K., Ferry, J. M. and **McDonough, W. F.** (2008) Formation of replacement dolomite in the Latemar carbonate buildup, Dolomites, Northern Italy: Part I. Field relations, mineralogy and Geochemistry. *American Journal of Science*, 308: 851-884.

64. Chabot, N. L., Campbell, A. J., **McDonough, W. F.**, Draper, D. S., Agee, C. B., Humayun, M., Watson, H. C., Cottrell, E. and Saslow[†], S. A. (2008) Trace Element Partitioning in the Fe-C system at 5 GPa: Implications for Earth's Core. *Geochimica et Cosmochimica Acta*, 72: 4146-4158.

65. Corgne[**], A., Keshav[**], S., Wood, B.J., **McDonough, W.F.** and Fei, Y. (2008) New metal-silicate partition coefficients and constraints on core composition and oxygen fugacity during Earth accretion. *Geochimica et Cosmochimica Acta*, 72: 574-589.

66. Finnigan[#], C. S., Brenan, J. M., Mungall, J. E. and **McDonough, W. F.** (2008) Experiments and models bearing on the role of chromite as a collector of platinum group minerals by local reduction. *Journal of Petrology*, 49: 1647-1665. doi:10.1093/petrology/egn041

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144. Zhang, Z., Dorfman, S. M., Labidi, J., Zhang, S., Li, M., Manga, M., Stixrude, L., **McDonough, W.F**. and Q. Williams, Q. (2016) Primordial metallic melt in the deep mantle, *Geophysical Research Letters* 43: 1-7 147. doi:10.1002/2016GL068560

145.

iii. Papers in Review:

Tang*, M., **McDonough, W.F.,** and Ash, R.D. (2016) Europium anomaly in the MORB source mantle, *submitted to Geochimica et Cosmochimica Acta* (in review).

Šrámek, O., Stevens*, L., **McDonough, W.F**., Mukhopadhyay, S. and Peterson, R.J. (2016) Subterranean production of neutrons, ^{39}Ar and ^{21}Ne: Rates and uncertainties, *submitted to Geochimica et Cosmochimica Acta* (in review) http://arxiv.org/abs/1509.07436.

Šrámek, O., Roskovec, B. Wipperfurth, S.A., Xi, Y., and **McDonough, W.F**. (2016) Revealing the Earth's mantle from the tallest mountains using the Jinping Neutrino Experiment, *submitted to Nature, Scientific Reports*, (in review),

iv. Citation analysis, from Google Scholar (as of June 2016)

http://scholar.google.com/citations?hl=en&user=uVqMMh0AAAAJ&view_op=list_works

h-index: 54, i10-index: 118, Total citations: > 32,620

33 papers with >100 citations; 19 papers with >200 citations; 13 papers with >300 citations, 6 papers with >400 citations, 5 papers with >500 citations, and 2 papers with >6000 citations

c. Book Reviews, News Items, Other Articles and Notes

1. **McDonough, W.F.** (1993) 29th International Geological Congress, Kyoto - a CEI viewpoint. IAVCEI News, Bulletin of Volcanology, 55: 229-230.

2. **McDonough, W.F.**, Arndt, N.T. and Shirey, S. (1995) Preface: Chemical Evolution of the Earth's Mantle. *Chemical Geology*, 120: iii–iv, 10.1016/0009-2541(95)90021-7

3. **McDonough, W.F.**, Albarede, F., Staudigel, H., White, W.B., (1996) Geoscientists Unite to Develop Earth Reference Model. EOS, Nov 5, 1996, pp. 443, doi:10.1029/96EO00298

4. Staudigel, H., Shaw, H. F., Albarede, F., **McDonough, W.F.** and White, W.M. (1997) Development of Geochemical Earth Reference Model (GERM) *Eos Transactions*, AGU, November 18, 1997, Vol. 78, Issue 46, Suppl., pp. 818.

5. Staudigel, H., Albarede, F., Blicher-Toft, J., Edmond, J., **McDonough, W.F.** and Jacobsen, S.B., *et al*., (1998) Geochemical Earth Reference Model (GERM): Description of the Initiative. *Chemical Geology*, 145: 301-325, doi: 10.1016/S0009-2541(97)00141-1

6. Staudigel, H., **McDonough, W.F.** and Shaw, H.F. (1998) Second GERM Workshop, La Jolla, CA, March 1998. The Geochemical Newsletter, July 1998, pp. 22-23.

7. **McDonough, W.F.** (2005) Earth sciences - Ghosts from within. *Nature* 436 (7050) 467-468, doi:10.1038/436467a

8. Staudt, A. C., Given, H. K. and **McDonough, W. F.** (2006), 2006 Election Results, *Eos Trans. AGU*, 87(7), 75, doi:10.1029/2006EO070007.

9. **McDonough, W.F.** (2007) Mapping the Earth's Engine. *Science*, 317 (5840): 1177-1178, doi: 10.1126/science.1144405

10. **McDonough, W. F.**, Bamzai, A. and Robinson, R. (2008), 2008 Election Results, *Eos Trans. AGU*, 89(8: 19 Feb), 75-76, doi:10.1029/2008EO080004.

11. Dye, S. **McDonough, W.F.** and Mahoney, J. (2008) Geoneutrino Measurements and Models Investigate Deep Earth. *EOS*, 89: 433–444, doi: 10.1029/2008EO440002

12. **McDonough, W. F.** (2008) Deducing a Reducing Mantle. *Nature*, 455: 881-882. doi:10.1038/455881a

13. **McDonough, W. F.** (2011) Meteoritic Clues Point Chromium Toward Earth's Core. *Science*, 331: 1397-1398, 10.1126/science.1203353

14. Hergt, J.M., Arevalo, R., Bèdard, L.P., Bellucci, J., Enzweiler, J., Jochum, K.P., Linge, K.L., **McDonough, W.F.**, Mertz-Kraus, R., Wiedenbeck, M., Wang, X. and Woodhead, J.D. (2011) GGR Critical Review of Analytical Developments in 2008--2009: An Introduction. *Geostandards and Geoanalytical Research*, 34: 325-326, doi: 10.1111/j.1751-908X.2010.00936.x

15. **McDonough, W.F.** (2014) Volume Editor's Introduction, in Analytical Geochemistry: Inorganic Instrumental Analysis, (Editor: McDonough, W.F.) Treatise in Geochemistry 2nd Edition, volume 15, Elsevier, Amsterdam

16. **McDonough, W.F.** and Šrámek, O. (2014) Neutrino Geoscience, News in Brief. *Environmental Earth Sciences*, 71: 3787–3791, doi 10.1007/s12665-014-3133-9

17. Alonso, J.R., and 49 co-authors, including **McDonough, W.F.** (2014) Advanced Scintillator Detector Concept (ASDC): A Concept Paper on the Physics Potential of Water-Based Liquid Scintillator. *White Paper for the Neutrino Physics community*, 54 pp. http://arxiv.org/abs/1409.5864

18. **McDonough, W.F.**, Xi, Y., Han, R., (2015) Bold frontier in Chinese geoscience, News & Views Earth Sciences portion of *Science Bulletin*, 60: 1628-1630, DOI 10.1007/s11434-015-0873-1

19. **McDonough, W.F.** (2015) Presentation of the Mineralogical Society of America Award for 2014 to Fang-Zhen Teng. *American Mineralogist* 100, 1317-1317.

20. Beacom, J.F., Chen, S., Cheng, J. and 34 co-authors, including **McDonough, W.F.** (2016) Letter of Intent: Jinping Neutrino Experiment. *Proposal for the Jinping Neutrino Experiment*, 69 pp. arxiv.org/abs/1602.01733

d. Talks, Abstracts, and Other Professional Papers Presented

i. Invited Talks and Lectures; Keynote Reviews and Addresses.

1991 Royal Society of London, Role of a Refractory Eclogite Reservoir in the Mantle. Conference on Fluids in Subduction Zone.

1994 Max Planck Institute, Mainz, FRG, *The Composition of the Silicate Earth and Core*. workshop on Formation of the Earth's Core.

1997 Köln, Germany, *Evidence for a Missing Reservoir in the Mantle*, 75th Annual Meeting of the German Mineralogical Society.

1998 University of California, Davis, CA., *Mineralogy and Composition of the Upper Mantle*, MSA Short Course, Ultrahigh-Pressure Mineralogy,

American Geophysical Union, *In Situ Studies of PGEs*: *Minerals in Fe-Meteorites.* AGU, Fall Meeting.

CHiPR Meeting, *Composition of the Mantle and Core, and GERM*, Conference on High Pressure Research, Maryland.

1999 American Geophysical Union, How well do we know the siderophile element signature of the Silicate Earth? AGU Spring Meeting.

2000 GEOANALYSIS 2000, Elemental and isotopic measurements using LA -MC-ICP-MS. 4th International Conference on the Analysis of Geological and Environmental Materials.

Carnegie Institution of Washington DC, Composition of the Earth's Core, Department of Terrestrial Magnetism.

2001 Smithsonian Institute, Chemical and mineralogical characteristics of planetary cores, Department of Minerals.

2002 8th Symposium of SEDI, Lake Tahoe, The Earth's Core: its composition, formation, and evolution. Geophysical and Geochemical Evolution of the Deep Earth.

Tokyo Institute of Technology, Tokyo Japan, Composition and nature of plume source regions. Superplume Workshop.

Atlanta, GA, *Lithium isotopic measurements: MS technique and results for Reference Materials*, 3rd International Conference on High Resolution Sector Field ICPMS.

2004 Max Plank Institute, Mainz, Germany, *Trace elements in the Earth's Core-Mantle System*, A fest in Honor of Dr. K.P. Jochum.

University of Pennsylvania, *The Composition of the Earth's core*, (26 September)

American Geophysical Union, *Siderophile and chalcophile elements in synthetic and natural materials*. AGU, Spring Meeting.

2005 Chemistry Department, George Washington University, *Micro-scale sampling at ng/g concentration levels via laser ablation ICP-MS*, (15 April)

Research School of Earth Sciences, The Australian National University, *The Composition of the Earth's core*, (7 April)

Beijing, China, *The composition of the lithospheric mantle*, IUGS-SECE Conference -The Origin, Evolution and Present State of Subcontinental Lithosphere, (25 June)

Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China, *The Composition of the Earth*, (30 June)

East-West Center, University of Hawaii, *The Earth's Composition: Constraints and uncertainties*, Neutrino Geophysics Workshop, Honolulu, Hawaii, (14 December)

2006 National Science Foundation, Alston, VA: *Neutrino Particle Physics and Geophysics: a Proposal* (26 May)

American Museum of Natural History (NYC) *Geoneutrinos and the composition of the Earth's core* (17 October 2006)

University of Texas (Austin) *Moderately volatile elements in planets* (8 November 2006)

University of Texas (Austin) *Geoneutrinos and the composition of the Earth's core* (9 November 2006)

Department of Terrestrial Magnetism/Carnegie Institution of Washington Title: *Accretion of moderately volatile elements* (20 December 2006)

2007 Geological Society of Washington, *Geoneutrinos: what are they and what do they tell us about the Earth?* (24 January)

Rutgers University: *The composition of the Earth and insights from geoneutrinos* (7 March)

University of Hawaii: *Composition of the Earth and its core* (22 March)

DOANOW (Deep Ocean Anti-Neutrino Observatory Workshop): *Heat Producing Elements in the Continents*, (23 March, University of Hawaii)

University of Maryland, Astronomy: *Accretion of moderately volatile elements* (4 April)

National Science Foundation, Alston, VA: *Hanohano - a deep ocean electron anti-neutrino observatory: an introduction to the science, technology and status* (21 May)

Department of Energy, Gaithersburg, MD: *Hanohano - a deep ocean electron anti-neutrino observatory: an introduction to the science, technology and status* (23 May)

Max Planck Institute, Mainz, Germany: *Mantle and Core: elements in the Earth and how they got there* (17 August)

Seoul National University: *Neutrino Geophysics and the Earth's budget of radioactive elements* (1 October)

Johns Hopkins University of Neutrino Geophysics and the Earth's budget of radioactive elements (10 September)

Seoul National University: Accretion of moderately volatile elements (1 October)

KIGAM (Korea Institute of Geology, Mining and Materials), Daejeon, South Korea: Neutrino Geophysics and the Earth's budget of radioactive elements (3 October)

KIGAM, Daejeon, South Korea: Accretion of moderately volatile elements (3 October)

University of Washington: Neutrino Geophysics and the Earth's budget of radioactive elements (15 November)

Applied Antineutrino Physics 2007: *Open Questions in Geosciences*, (12 December, Paris, France)

2008 NDNM/DIA, U. Maryland, College Park, MD, "Neutrino Science, The nexus of physics, geology, astrophysics and security " (3 January)

NASA Goddard, Neutrino Geophysics and the Earth's budget of radioactive elements, (23 January)

Physics Department, University of Toronto, Geoneutrinos and heat production in the Earth: constraints and implications (11 April)

Physics Department, University of Maryland, Antineutrino Detection, Geoneutrinos and Heat Production in the Earth (16 April)

University of California, Davis, Geoneutrinos and heat production in the Earth: constraints and implications (7 May)

Neutrino 2008, Christchurch, NZ, Why Geo-neutrinos are interesting (26 May)

2008 Annual Meeting of COMPRES, Radiogenic heat production in the Earth: constraints and implications (26 June)

Fermi National Accelerator Laboratory Lab, Geoneutrinos and heat production in the Earth: constraints and implications (2 July)

Bayerisches Geoinstitut, University of Bayreuth, Antineutrino Detection, Geoneutrinos and Heat Production in the Earth (18 August)

Bayerisches Geoinstitut, University of Bayreuth, 2K-U-Th abundances of the mantle: consequences for ^{40}Ar and U/Pb (20 August)

University of Minnesota, Antineutrino Detection, Geoneutrinos an Heat Production in the Earth (2 October)

University of Minnesota, K-U-Th abundances of oceanic rock: consequences of ^{40}Ar, U/Pb and the secular thermal evolution of the planet (3 October)

2009 15 July, invited lecture, Towards Neutrino Technologies workshop, International Center for Theoretical Physics, Trieste, Italy - *Th and U in the Earth*

21 July, invited lecture, Department of Physics, Technical University Munich, *HanoHano meets LENA*: *Hanohano project report*

2 October, invited lecture, DUSEL Science 2009 (Homestake, SD, USA0, *Geo-neutrinos*

15 October, invited lecture, School of Earth Sciences, The Ohio State University, *Geoneutrinos and heat production in the Earth: constraints and implications*

4 December, invited lecture, Department of Chemistry and Biochemistry, University of Maryland – *Antineutrino Detection, national security and Geoneutrinos*

2010

5 February, invited lecture, Department of Geology, Southern Methodist University, Dallas, TX - Geoneutrinos and heat production in the Earth: constraints and implications

8 February, invited lecture, Department of Physics, Southern Methodist University, Dallas, TX – Antineutrino/Geoneutrino detection – interdisciplinary science

31 March, invited lecture, Department of Physics and Astronomy, University of Rochester, Rochester, NY - Geoneutrinos and heat production in the Earth: constraints and implications

3 May, invited lecture, Chemistry 705, Department of Chemistry and Biochemistry, University of Maryland – Borexino detector and geoneutrinos

12 June, invited lecture, Fred Frey Symposium, Dept of Earth, Atmosphere and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, MA – Geoneutrinos and Earth compositional models

28 June, invited Introduction Lecture, KITP, CIDER summer program, UCSB, Santa Barbara, CA – Origin and early evolution of the Earth: a volatile perspective

13 July, invited lecture, KITP, CIDER summer program, UCSB, Santa Barbara, CA - Geoneutrinos and heat production in the Earth: constraints and implications

31 August, invited lecture, Department of Geology, University of Frankfurt, Frankfurt, Germany - Geoneutrinos and heat production in the Earth: constraints and implications

13 Sept, Keynote Lecture, the 89° SIMP (Società Italiana di Mineralogia e Petrologia) Congress, Ferrara, Italy

21 Sept, Department of Geology, ETH, Zurich, Switzerland - Geoneutrinos and heat production in the Earth: constraints and implications

28 Sept, Keynote Lecture, International Doctorate on Astro-Particle Physics meeting, at the IUSS-Ferrara 1391" Study Center, Ferrara, Italy –Neutrinos and Geology – The Composition of the Terrestrial Planets and early evolution of the Earth

18 October, invited lecture, Department of Geology, University of Ferrara, Ferrara, Italy – Standard Model of the Earth

19 October, invited lecture, Department of Geology, University of Pavia, Pavia, Italy – Earth Models and geoneutrinos

21 October, invited lecture, Department of Geology, University of Ferrara, Ferrara, Italy –Neutrinos and Geology

30 October, invited lecture, Department of Geology, Beijing University, Beijing, China - Geoneutrinos and heat production in the Earth: constraints and implications

31 October, Keynote lecture, Shen-su Sun Symposium, Petrology and Geodynamics Conference, Beijing, China - Geoneutrinos and heat production in the Earth: constraints and implications

2 November, invited lecture, Department of Geology, Guangzhou University, Guangzhou, China – Earth models and geoneutrinos

5 November, invited lecture, Department of Geology, Hong Kong University, Hong Kong, China - Geoneutrinos and heat production in the Earth: constraints and implications

3 December, invited lecture, Department of Geology, University of Dar es Salaam, Dar es Salaam, Tanzania – Origin, Composition and thermal evolution of the Earth

20 December, invited lecture, Department of Physics, University of Dar es Salaam, Dar es Salaam, Tanzania – Geoneutrino/Antineutrino detection – interdisciplinary science

2011 18 February, invited lecture, Department of Geology, University of Dar es Salaam, Dar es Salaam, Tanzania – Composition of Global MORB and its source region

25 March, invited lecture, School of Earth Sciences, University of Melbourne, Melbourne, Australia - Geoneutrinos and heat production in the Earth: constraints and implications

14 April, invited lecture, Department of Geology, China University of Geosciences, Wuhan, China - Geoneutrinos and heat production in the Earth: constraints and implications

18 April, invited lecture, Department of Geology, China University of Geosciences, Wuhan, China – Compositional Models of the Earth

21 April, lecture, Chinese Academy of Sciences, Neutrino Geosciences in China – exploring Daya Bay II, Beijing, China - Geoneutrinos and heat production in the Earth: constraints and implications

25 April, invited lecture, Department of Geology, Northwest University, Xi'an, China - Geoneutrinos and heat production in the Earth: constraints and implications

26 May, informal lecture, NIST committee on Nuclear Forensics SRMs, University of Maryland - Advances in Laser Ablation ICP-MS and Material Forensics

20 June, invited lecture, Neutrino Geosciences at Deadwood, CETAP* (Center for Theoretical and Underground Physics) summer program, Deadwood, SD – BSE Models - Geoneutrinos

1 July, invited lecture, Geoff Davies symposium *The Davies mantle: reconciling geophysical and geochemical perspectives*, IUGG conference, Melbourne, Australia – Models of the Earth, secular cooling and geoneutrions

5 July, invited lecture, CIDER (Cooperative Institute for Dynamic Earth Research) summer program, UCB, Berkeley, CA – The nature of the Continental Lithospheric Mantle

13 July, invited lecture, Savannah River National Laboratory, Aiken, SC - Advances in Laser Ablation ICP-MS and Material Forensics

14 October, invited lecture, XIII Brazilian Congress of Geochemistry and the III Geochemistry Symposium of the MERCOSUL Countries, Center of FAURGS Gramado, Brazil - Geoneutrinos and heat production in the Earth: constraints and implications

18 November, invited lecture, Department of Geosciences, Princeton University, Princeton, NJ – Geoneutrinos and heat production in the Earth: constraints and implications

8 December, contributed lecture, Fall AGU meeting, Thermal and Geoneutrino fluxes: geochemical reference Earth Model

2012 19 January, invited lecture, Department of Physics, University of Hawaii, Manoa, Honolulu, HI – Geoneutrinos and heat production in the Earth: constraints and implications

7 February, invited lecture, Department of Physics, University of Maryland, College Park, MD – Geoneutrinos and heat production in the Earth: constraints and implications

21 February, invited lecture, Department of Geosciences, Pennsylvania State, University Park, PA – Geoneutrinos and heat production in the Earth: constraints and implications

8 March, invited lecture, NSF, Ballston, VA – Towards mapping the Mantle's distribution of Th and U using geoneutrinos

14 March, invited lecture, Institute Physics du Globe, University of Paris, Paris, France – Geoneutrinos and heat production in the Earth: constraints and implications

15 March, invited lecture, Ecole Normal Superior, Lyon, France – Geoneutrinos and heat production in the Earth: constraints and implications

28 March, invited lecture, Laboratory for Physical Sciences, University of Maryland – Antineutrino detection: experiment in physics, astrophysics, geology and national security

25 April, Bunsen Medal lecture, European GeoSciences Union, Vienna, Austria – Geoneutrinos and heat production in the Earth: constraints and implications

14 May, invited lecture, SNOLAB Grand Opening Workshop, Sudbury, Ontario, Canada - Models of the Earth: thermal evolution and geoneutrino studies

22 May, invited lecture, Lawrence Berkeley Laboratory, Berkeley, CA, USA - Advances in Laser Ablation ICP-MS and Nuclear Forensics.

4 June, invited lecture, China University of Geosciences, Wuhan, China – Advances in Laser Ablation ICP-MS and Nuclear Forensics

12 June, invited lecture, Institute of Geology and Geophysics, Chinese Academy of Science, Beijing, China – Geoneutrinos and heat production in the Earth: constraints and implications

19 June, contributed lecture, 2012 Goldschmidt Meeting, Montreal, Canada – Compositional model of the Earth and early planetary evolution

20 and 22 July, invited lectures, CIDER 2012 Summer Program, UC Santa Barbara - Compositional model of the Earth and early planetary evolution

24 September, invited lecture, Neutrino Physics and Beyond, Shenzhen, China - Geoneutrinos and the composition of the Earth

27 September, invited lecture, Guangzhou Institute of Geochemistry, Chinese Academy of Science, Guangzhou, China - Compositional model of the Earth and early planetary evolution

10 October, invited lecture, Elliot School of International Affairs, George Washington University - Antineutrino detection: an interdisciplinary experiment at the boundaries of physics, astrophysics, geology and national security

18 October, invited lecture, Earth and Atmospheric Sciences, Cornell University - Geoneutrinos and the composition of the Earth

15 November, invited lecture, Department of Geology and Geophysics, Yale University - Geoneutrinos and the composition of the Earth

2013 16 January, invited lecture, Mid-Atlantic APS Senior Physicists Group, American Center for Physics, College Park, MD – Geoneutrinos and heat production in the Earth

7 February, invited lecture, New Directions in Neutrino Physics, Aspen Center for Physics - Geoneutrinos: applications, future directions and defining the Earth's engine

27 February, invited lecture, CHEM 705: Nuclear Chemistry, UMD - Antineutrino detection: an interdisciplinary experiment at the boundaries of physics, astrophysics, geology and national security

14 March, invited lecture, Institute for Studies of the Earth's Interior, Okayama University, Misasa, Japan - Geoneutrinos and the composition of the Earth

21 March, invited lecture, Neutrino Geosciences 2013 meeting, Takayama, Japan - Geo-neutrino Science (overview)

5 April North Dakota, invited lecture, Geology and Geological Engineering, University of North Dakota, – Geoneutrinos and heat production in the Earth

5 April, the Spring Banquet LEEPS Lecture (Leading Edge of Earth and Planetary Science), University of North Dakota, – Imaging the Earth's interior with geo-neutrinos

13 May, SNO+ geo-neutrino meeting at University of Maryland, – Geoneutrinos and heat production in the Earth

18June, GSC-GSA meeting, Chengdu, China, – Geoneutrino studies of the Earth: composition of the Earth, its radiogenic heat production and imaging deep structures in the mantle

10 and 22 July, invited lectures, CIDER 2012 Summer Program, UC Santa Barbara - Geochem Databases; Compositional model of the Earth and its early evolution

18July, invited lecture, Lawrence Livermore national Lab, Livermore, CA –Geo- and reactor antineutrinos: Promises, prospects, and future experiments

25 July, invited lecture, Muon and Neutrino Radiography meeting, Tokyo, Japan, – Geoneutrinos: Earth composition, heat production and deep structures

26 July, invited lecture, Muon and Neutrino Radiography meeting, Tokyo, Japan, – Hanohano

31 July, lecture, anti-neutrino workshop, University of Maryland, – Geoneutrinos: Earth composition, heat production and deep structures

30 October, invited Keynote lecture, Sendai, Japan, Workshop on Particle Geophysics, – The future of Neutrino Geoscience

1 Nov, invited lecture, Applied Anti-neutrino Physics 2013 meeting, Seoul, South Korea, – Geoneutrino studies of the Earth and a role for Hanohano

2014 9 Jan, invited lecture, Department of Physics, North China Electrical and Power University, Beijing, China - Geoneutrinos and heat production in the Earth

14 Jan, invited lecture, 3rd JUNO meeting, Kaiping, China, – Strategies for predicting a geoneutrino signal at JUNO

20 Jan, invited lecture, Geoscience at JUNO meeting, IGG/CAS Beijing, China, – Predicting the geoneutrino signal at JUNO: a role for an integrated geological studies

31 Jan, invited lecture, NASA Goddard, Maryland, – Imaging the Earth's interior with geo-neutrinos

20 March, invited lecture, Department of Physics, New Mexico State University, – Geoneutrinos and heat production in the Earth

30 April, invited lecture, Laboratory for Physical Sciences, University of Maryland, College Park, – Imaging the Earth's Interior with Geo-Neutrinos

29 May, invited Mindlin lecture, Department of Earth and Planetary Sciences, University of Washington, Seattle, – Geoneutrinos and heat production in the Earth

30 June, Geo-neutrino Working Group Meeting at KITP Santa Barba - Radiogenic Heating and Geo-neutrinos from Crust

1 July, Geo-neutrino Working Group Meeting at KITP Santa Barba - U & Th concentrations in MORB-source mantle

1 July, Geo-neutrino Working Group Meeting at KITP Santa Barba - Geo-neutrino observational strategies

7 July, CIDER 2014 Summer Program at KITP Santa Barba - Introduction: Scientific motivation for the program theme – Bruce Buffett and Bill McDonough

15 July, CIDER 2014 Summer Program at KITP Santa Barba - Research talk: Geoneutrinos and heat production in the Earth

10 September, invited lecture, Geological Society of Washington, Cosmos Club, Washington, D.C. - Detecting Geoneutrinos and the Earth's Heat Budget

17 September, invited lecture, Brookhaven National Laboratory, Brookhaven, New York - Imaging the Earth's interior with geo-neutrinos

10-12 October, invited lecture, Mineral Physics Planning Workshop, Argonne National Laboratory, Argonne, IL - Earth science grand challenges of benefit to mineral physics community

12-14 October, invited lecture, Circumstellar Disks and Planet Formation workshop, Michigan Institute for Research In Astrophysics, University of Michigan – building terrestrial planets from solar abundances and chondritic constraints

24 October, invited lecture, Physics Department, Virginia Tech, Blacksburg, VA, – Geoneutrinos and heat production in the Earth

4 November, invited lecture, 15th International Workshop on Next generation Nucleon Decay and Neutrino Detectors (NNN14) Paris, France – Present and future of Geo-neutrinos

27 November, invited lecture, Geoneutrino Measurements Workshop, Sungkyunkwan University, Seoul, South Korea, – Geoneutrinos and heat production in the Earth

2015 9 January, invited lecture, Department of Physics, North China Electrical and Power University, Beijing, China – Geoneutrino detection at JUNO: and the Earth's energy budget

15 January, invited lecture, International Workshop on KamLAND Geoscience, Tokyo, Japan – Why do we measure U and Th in the Earth? And – Reference Earth model: heat-producing elements & geoneutrino flux.

16 January, invited lecture, International Workshop on KamLAND Geoscience, Tokyo, Japan – Hanohano

25 February, invited lecture, Department of Earth Sciences, University of California, Santa Barbara, California – Geoneutrinos and heat production in the Earth

21 April, invited lecture, Max Planck Institute, Physics, W Heisenberg Inst., Munich, Germany - Geoneutrinos and heat production in the Earth

27 April, invited lecture, Department of Geophysics, Charles University, Prague, Czech Republic - Geoneutrinos and heat production in the Earth

6 May, invited lecture, University of Milano, Milano, Italy - Geoneutrinos and heat production in the Earth

12 May, invited lecture, University of Ferrara, Ferrara, Italy - Geoneutrinos and heat production in the Earth

27 May, Plenary lecture, North American Laser Ablation Workshop, University of Texas, Austin, Texas – Where can improvements be made in LA-ICP-MS analysis?

5 June, invited lecture, 2015 Workshop of Jinping Neutrino, Tsinghua University, Beijing, China - Geoneutrinos

15 June, invited lecture, Neutrino Geoscience 2015 Conference, Institut de Physique du Globe de Paris, Paris, France - What can we learn by combining neutrinos physics and geosciences?

22 July, invited lecture, Antineutrino/Neutron Imaging Program Review 2015 at the University of Hawai`i, East-West Centre, - Geoneutrino and Geology Overview

8 August, Keynote lecture, Interaction and Coevolution of the Core and Mantle: Toward Integrated Deep Earth Science, Kick-off meeting, Ehime University, Matsuyama, Japan - The Core and Mantle: future prospects for understanding the Deep Earth

7 November, The Earth's Core and Mantle: Structure, composition, evolution, Matsuyama, Japan – Core and Mantle compositions: Neutrino geophysics insights

8 December, invited lecture, Applied Antineutrino Physics 2015 meeting, Ballston, VA (Virginia Tech), – Geoneutrino studies of the Earth

14 December, American Geophysical Union Fall meeting (San Francisco), – An Earth with affinities to Enstatite Chondrites.

2016 7 January, invited lecture, 1st International workshop for Neutrino Oscillation Tomography, Earthquake Research Institute, the University of Tokyo, Japan – The Core and Mantle: future prospects for understanding the Deep Earth

8 January, invited lecture, 1st International workshop for Neutrino Oscillation Tomography, Earthquake Research Institute, the University of Tokyo, Japan – Hanohano

4 February, invited lecture, Department of Geology and Geophysics, University of Utah, - Geoneutrinos and heat production in the Earth

21 April, invited lecture, Department of Earth Sciences, University of Minnesota, - Geoneutrinos and heat production in the Earth (*Dept. seminar*)

22 April, invited lecture, Production of neutrons, ^{39}Ar and ^{21}Ne and the K-Th-U content of the mantle (*informal Technical Talk*)

e. Contracts and Grants

i. University of Maryland

NSF EAR EAR1551388 ($133,017) Investigating Li isotope behavior in zircons, with implications for the Hadean Earth (Co-PI), U of MD College Park, 11/01/2015 - 12/31/2016

University of Hawai`i UARC (Contract No. N00024-08-D-6323) from NGA (National Geospatial-Intelligence Agency) ($100,000) Antineutrino/Neutron Geolocation Program V, 2015: (PI) July, 2015 to Arpil, 2016

University of Hawai`i UARC (Contract No. N00024-08-D-6323) from NGA (National Geospatial-Intelligence Agency) ($36,000) Antineutrino/Neutron Geolocation Program IV, 2014: (PI) June 13, 2014 to December 17, 2015

NSF EAR 1321954 ($226,004) Constraining the secular compositional evolution of the upper continental crust using ancient glacial deposits and creation of an upper crustal reference suite (Co-PI), U of MD College Park, 04/01/2013 - 06/30/2015

NSF EAR 1321229 ($29,975) Neutrino Geosciences (PI), U of MD College Park, 01/14/2013

Savannah River Nuclear Solutions ($60,000), Nuclear Forensics: Production and Provenance, (Co-PI, with Alice Mignerey), U of MD College Park, 04/02/2013 - 12/31/2013

NSF EAR 1067983 ($269,120) Collaborative Research: Estimating the mantle contribution to the Geo-neutrino flux at the Sudbury Neutrino Observatory (PI), U of MD College Park, 01/06/2011

DHS subcontract to SRNL ($190,500), Nuclear Forensics: Production and Provenance, (Co-PI, with Alice Mignerey), U of MD College Park, 06/01/2011

NSF EAR 0948549 ($446,182) Lithium isotope investigations of crustal evolution (co-I), U of MD College Park, 01/03/2010

NSF EAR 0855791 ($459,912) CSEDI Collaborative Research: Neutrino Geophysics: collaboration between geology and particle physics (PI), U of MD College Park, 08/06/2009

NSF IIS 0842586 ($28,927) Second Workshop on Neutrino Detection for Nuclear Monitoring (PI), U of MD College Park, 09/15/2008

NASA NNX08AH76G: ($345,000) Compositional Studies of Iron Meteorites and Pallasitic Parent Bodies (PI), U of MD College Park, 01/06/2008 to 31/05/2011

NSF EAR 0841814 ($23,498) a Workshop on Neutrino Geoscience 2008 (PI), U of MD College Park, 09/11/2008

NSF IIS 0754061 ($31,564) Workshop on Neutrino Detection for Nuclear Monitoring: 30 Oct-1 Nov 2007 (PI), U of MD College Park, 09/24/2007

NSF EAR 0739006 ($336,604) Studies on the Partitioning of Elements Between the Core, Mantle and Crust (PI), U of MD College Park, 04/08/2008

NSF EAR 0609689 ($319,406) Determining the Processes Responsible for Lithium Isotope Fractionation (Co-I), U of MD College Park, 07/07/2006

NSF EAR 0337621 ($269,936) Geochemistry of Siderophile and Chalcophile Element in the Earth: Studies on the Distribution of These Elements in Natural and Synthetic Samples (PI), U of MD College Park, 12/02/2003

NASA NNG04GG17G: ($40,000) Chemical and Isotopic Compositions of Meteorites (PI), Duration: 04/01/03-03/31/06.

NSF EAR 0208012 ($279,922) Li Isotopic Investigations of the Crust and Mantle (Co-I), U of MD College Park, 05/24/2002

NSF EAR 0106719 ($143,654) Li Isotopic Investigations of the Crust and Mantle (Co-I), U of MD College Park, 07/18/2001

NSF EAR 0196194: ($57,747) Technician Support: EPS-ICPMS Facility at Harvard (Co-I), U of MD College Park, 09/01/00-12/31/01

NSF EAR 0004128: ($140,000) Technician Support: ICP-MS Facility at UMD, U of MD College Park (PI), 07/15/01-06/30/03

NSF EAR 0004095: ($184,197) Acquisition of an Inductively Coupled Plasma Mass Spectrometer (PI), U of MD College Park, 04/15/01-06/30/03

ii. Harvard University*

* I was not permitted PI status on research grants at Harvard University

NSF EAR 9903159: ($169,007) "Evolution of cratonic lithosphere in Eastern China". Investigators: R.L. Rudnick and W.F. McDonough: 6/199 - 5/2001.

NSF EAR 9726058: ($312,500) "Acquisition of an Inductively Coupled Plasma Mass Spectrometer UV Laser Lab and Microcentric Nebulizer". Investigators: R.L. Rudnick, W.F. McDonough and D.P. Schrag: 3/1998 – 2/2000.

NSF EAR 9711008: ($150,000) "Technician Support: EPS-ICPMS Facility at Harvard". Investigators: R.L. Rudnick and W.F. McDonough: 7/1997 – 6/2000.

NSF EAR 9709885: ($68,606) "CSEDI: Geochemical Earth Reference Model (GERM) - a Workshop, February 1998". Investigators: H. Staudigel (and W.F. McDonough – listed as a sub-contractor given problems with PI status at Harvard University): 8/1997-6/1998.

NSF EAR 9633498: ($50,000) "Abundances of W and Mo in MORBs: Characterization of the Depleted Mantle Reservoir". Investigators: S.B. Jacobsen and W.F. McDonough: 11/1996 – 10/1997.

NSF EAR 9616072: ($128,494) "Technician Support: EPS-TIMS Facility at Harvard". Investigators: S.B. Jacobsen, P.F. Hoffman, W.F. McDonough and R.L. Rudnick: 2/1997 – 1/2000.

NSF EAR 9506517: ($219,600) "Secular Evolution in the Composition of the Mantle". Investigators: S.B. Jacobsen and W.F. McDonough: 2/1996 - 1/2000.

f. Fellowships, Prizes and Awards

President-elect, *Volcanology Geochemistry Petrology (VGP) Section, AGU*, 2015

Robert Wilhelm Bunsen Medal, *European Geosciences Union*, 2012

Sul Ross State University Distinguished Alumni, *Sul Ross State University*, 2011

Fellow, *American Geophysical Union*, 2011

Copernicus Visiting Scientist, *University of Ferrara*, Italy, 2010

Fellow, *Geochemical Society and the European Association for Geochemistry*, 2010

Fellow, *Mineralogical Society of America*, 2009

Distinguished Faculty Award, *CMPS Board of Visitors, University of Maryland*, 2009

ISI Highly Cited Paper (April 2005), The Composition of the Earth (*Chemical Geology*, **120***:* 223-253*)* http://www.in-cites.com/papers/WilliamMcDonough.html

Fellow, *Geological Society of America*, 2003

Fellow, *Alexander von Humboldt Society*, 1987

Visiting Graduate Fellowship, *Lunar and Planetary Institute*, TX, 1982-1983

Departmental Award in *Anthropology*, (Univ. of Massachusetts/Boston), 1977

g. Editorships, Editorial Boards, & Reviewing Activities for Journals and Other Learned Publications

i. Editorships

2009-2015	Editor-in-Chief, *Geostandards and Geoanalytical Research*
2010-2014	Editor, Analytical Geochemistry: Inorganic Instrumental Analysis, Treatise in Geochemistry 2nd Edition, Volume 15, Elsevier, 452 pp.
2008-2011	Advisory Board, COMPRES
2007	Associate Guest Editor, *Journal of Geophysical Research*
2006	Associate Editor-*Journal of Geophysical Research-Solid Earth*, AGU
1998-2001	Executive Board Member, G^3: Geochemistry, Geophysics and Geosystems
1997-1999	Co-Editor (with R. van der Hilst), Composition, Deep Structure and Evolution of Continents, Developments in Geotectonics, 24, Elsevier, 300 pp.
1996-1997	Editorial Board, GEOLOGY
1996-present	Editorial Board, GERM (Geochemical Earth Reference Model)
1993-1995	Guest Editor, CHEMICAL GEOLOGY, special issue: *Chemical Evolution of the Mantle*
1991-1992	Editor of the 1991 Annual Report of the Research School of Earth Sciences, RSES, Australian National University, 196 pp.

ii. Society memberships

American Geophysical Union

Geochemical Society

Mineralogical Society of America

Geological Society of America

Geological Society of Washington

iii. Reviewing Activities

Science

Proceedings of the National Academy of Sciences

Nature, Nature Geoscience, Science Reports, Nature Communications

Journal of Geophysical Research, Reviews of Geophysics

Earth and Planetary Sciences Letters

Geochemistry, Geophysics and Geosystems

Geochimica et Cosmochimica Acta

Chemical Geology

Geology

Journal of Analytical Atomic Spectroscopy

Geostandards and Geoanalytical Research

Contributions to Mineralogy and Petrology

American Mineralogist

Earth Moon and Planets

Physical Review D

II. TEACHING, MENTORING, AND ADVISING

a. Courses taught in the last five years

i. General

2001 – 2013, 16

GEOL 471/671 Geochemical Methods of Analysis (~6 students/semester)

2003-05, '08, '09, '11-'15

GEOL 100 Introduction to Physical Geology (~100 students/semester)

ii. University Honors, College Park Scholars, and other special programs

2000 – 2007, 2014

Honors 279W: The Solar System (2000-03 with 20 students/semester)

iii. Independent Study, Tutorial, Internship Supervision

Geology 489/689: Physics and Chemistry of Volcanoes (2003 with 1 undergraduate student)

b. Course or Curriculum Development

i. Harvard University (1996-99)

Joint Harvard–MIT, graduate courses in Earth Sciences: Together with Professors Rob van der Hilst (MIT) and Rick O'Connell (Harvard) we designed a new graduate course dedicated to promoting cross-university exchange of ideas and research. This course was held for 3 consecutive years with ~12 graduate students enrolled each year. This course provided a highly interactive forum for graduate students that focused on topical issues in Earth Sciences. As a consequence of the first course, we held an international workshop (Continental Roots) at Harvard University (with the graduate students participating in the workshop for free) that was also accompanied by the publication of an edited book (Continental Roots) from the proceedings of this workshop. In addition, following on from both the first and second year, there were several abstracts presented at AGU meetings and other conferences on ideas developed by students and faculty from these courses. An AGU symposium at the Fall '98 meeting (S11 The Scale of Mantle Convection: How Can Geophysical and Geochemical Views Be Reconciled?) was held. Finally, the discussions and interactions that began in these courses also resulted in published papers in journals including, *Science*, *Earth and Planetary Science Lett*ers and *Lithos*.

ii. Boston University (1995)

GL 424 Igneous and Metamorphic Petrology

iii. Research School of Earth Sciences, Australian National University

Chemistry of the Earth Summer School (1992): After receiving approval from the Faculty Board of the Research School of Earth Sciences, Australian National University, I initiated and developed a summer school for advanced undergraduates, held at the University's Research Station on the SE coast of Australia. This initiative continues today on a bi-annual basis, with the aim of attracting promising students into careers in Earth Sciences. About 20 of the top undergraduate and Master's students in Australia and New Zealand, with backgrounds in Chemistry, Physics and/or Earth Sciences, participate in an 8-day program that introduces them to a wide spectrum of research areas in geochemical and environmental studies. Representatives from the minerals industry also participate in the school. During the start-up phase, I secured funding for this program from academic and industrial sources.

c. Advising - Research Direction

i. Undergraduate Advising (University of Maryland)

GEOL 393/394 – Senior Thesis Research Projects, which includes advising on research and conducting analyses in my lab.

M. Lipella	Awarded B.S. 2004: Refractory element fractionations in the CV3 carbonaceous chondrite Allende: What role do CAIs play?
C. Reynolds	Awarded B.S. 2004: The behavior of niobium during core formation
J. Hillebrand	Awarded B.S. 2004: Characterization of the distribution of sideophile and highly siderophile elements in the Milton and Eagle Station Pallasites
D. Aeiker	Awarded B.S. 2006: Deducing the depth of origin of granulite xenoliths from zircon-rutile thermometry: a case study from Tanzania
D. Slobodyanik	Awarded B.S. 2009: Using Chemical Contaminant Profiles to Determine Sediment Depositional History at Little Paint Branch Creek

C. Hanson — Awarded B.S. 2009: Vein Related Mass Transport in the Ritter Range Roof Pendant during Late Cretaceous Contact Metamorphism

S. Regen — Awarded B.S. 2010: Fluid-Rock Interactions: Lithium Concentrations in Minerals from a block in the Franciscan Complex, California

N. Sievers — Awarded B.S. 2012: Evidence for Chemical Changes during Subduction Zone Metamorphism within the Catalina Schist

T. Newton — Awarded B.S. 2013: Geochemistry of the Timberville Zn-Pb District, Rockingham County, VA

CHEM 398 – Senior Honors Research Projects, which includes advising on

S. A. Saslow — Awarded B.S. 2010 Element Partitioning between Olivine and Wadsleyite: An analog study at atmospheric pressure

ii. Laboratory Research Assistants (Mentoring in the Practice of Science)

PLASMA LAB Research Assistants

Students	Major	Duration
Aeiker, Dusty	Geology	04 - '06
Babbitt, Zachary	Computer Sciences	14-‘15
Baker. Emily	Marine Biology	02 - '04
Boron-Brenner, Lucas	Chemistry	09 - '10
Carter, Brooke	Geology	05
Chung, Elena	Chemistry	04 - '06
Cangialosi, Frank	Computer Sciences	14
Drymala, Suzanne	Geology	06
Drysdale, Peter	unknown	03
Fitzgerald, Marc	Chemistry	07 - '10
Engel*, Kristi	Physics/Astronomy	13-‘15
Fornace, Mark	Geology/Chemistry, Uchicago	11
Gelinas, Amy	Geology	01
Gilbert, Laura	Geology	03
Headley, Rachel	Physics	03 - '04
James, Jonathan	Geology	05
Laszlo, Istvan	Physics	01 - '03
Lim, Andrew	Chemistry	12-'13
Liu, Fang	Computer Eng. (Grad Student)	02 - '03
Losey, Cara	Civil Engineering	04 - '06
Luong*, Mario	Chemistry	06 - '07
McCleaf, Ashley	Geology	04 - '06
McKenney, Sarah	Physics	02
Newton, Tyler	Geology	12-'13
Njo, Heather Briallen	Environmental Sciences	03 - '04
Oberoi, Ankur	Computer Sciences	06
Ohly, Rebecca	Geology	09 - '10
Oshida , Kathleen	Chemistry	13
Puls, Brendan	Geology	01 - '03
Saslow, Sarah	Chemistry	08 - '10
Shetty, Purushottam	Computer Eng. (Grad Student)	04 - '06

** stayed after B.S. to work for a year at full time status*

iii. ***Other students*** *(*African American High School students)*

*****Kandyce Jackson (senior at Oxen Hill High School; High School CMPS SIRP Intern) Research project: Ni isotopes in Fe-meteorites: search for live ^{60}Fe.

Madara Jayatilake[†] (senior at Walt Whitman High School) Research project: Uranium Isotopic analyses of natural and depleted muds.

[†]2nd Place winner, American Chemical Soc. of Washington and American Nuclear Society

*****Paraoan, Jett (senior at Oxon Hill High School) Research project: Water analyses in the Washington DC Area.

Annie Kielman (senior at Eleanor Roosevelt High School) Research project: Analyzing trace element content of different colored varieties of quartz.

Jacob Siegel (junior at Bethesda Chevy Chase High School) Research project: Development of the miniTime-Cube particle attenuation shield (anti-neutrino detector)

*****Lauren Thompson (senior at Charles Flower High School) Research project: Trace element content of domestic house paint.

K. Patrick	B.Sc. Honours, (co-supervisor) Department of Geology, Australian National University (1994)
S. Edgecombe	B.Sc. Honours, (co-supervisor) Department of Geology, Australian National University (1992)

iv. ***Master's Advising - University of Maryland***

(Department of Geology) [my students who I supervised are underlined]

David Cook	Awarded M.S. 2001 (Thesis Committee Member, advised on research)
Jenise Honesto	Awarded M.S. 2006 (Thesis Advisor)
Adam Mansur	Awarded M.S. 2008 (Thesis Committee Member)
Noah Miller	Awarded M.S. 2009 (Thesis Committee Member)
Brian Mumaw	2008-2010 (left without finishing)
John Luke Henriquez	Awarded M.S. 2012 (Advising w/S. Penniston-Dorland)
Dana Borg	Awarded M.S. 2013 (Advising)
Kristy Long	Awarded M.S. 2013 (Advising w/R. Rudnick)
James Dottin	2015-present (Thesis Advising)
Anthony Mautino	2015-present (Thesis Advising)

(Department of Chemistry)

M. Dolor	Awarded M.S. 2005 (Thesis Committee Member, advising on research, analyses in my lab)
Ashita Stephens	Awarded M.S. 2015 (Thesis Advisor along w/A. Mignerey)

v. ***Doctoral Advising - University of Maryland***

Department of Geology

Adam Simon	Awarded Ph.D. 2003 (DCM, advising, conducting analyses in my lab)
Fangzhen Teng	Awarded Ph.D. 2005 (Dissertation Advisor)
A. Gangopadhyay	Awarded Ph.D. 2004 (DCM, advising, conducting analyses in my lab)
David Johnston	Awarded Ph.D.2007 (Dissertation Committee Member)
Thomas Ireland	Awarded Ph.D. 2009 (Dissertation Committee Member)
Kateryna Klochko	Awarded Ph.D. 2009 (Dissertation Committee Member)

Ricardo Arévalo	Awarded Ph.D. 2010 (Dissertation Advisor)
Jeremy Bellucci	Awarded Ph.D. 2011 (Dissertation Advisor)
Lin Qiu	Awarded Ph.D. 2011 (Dissertation Advisor along w/R. Rudnick)
Brian Tattitch	Awarded Ph.D. 2012 (Dissertation Committee, advising on research)
Xiaoming Liu	Awarded Ph.D. 2013 (Dissertation Advisor along w/ R. Rudnick)
Yu Huang	Awarded Ph.D. 2013 (Dissertation Advisor along w/R. Rudnick)
Miriam Galenas	Awarded Ph.D. 2014 (Dissertation Committee, advising on research)
Ming Tang	Awarded Ph.D. 2014 (Dissertation Advisor along w/R. Rudnick)
Emily Worsham	2012-present (Dissertation Committee, advising on research)
Gregory Archer	2014-present (Dissertation Committee, advising on research)
Scott Wipperfurth	2014-present (Dissertation Advisor)

(Department of Chemistry)

M. Dolor	Awarded Ph.D. 2009 (Dissertation Committee, advising on research, conducting analyses in my lab)
Nicholas Sharp	Awarded Ph.D. 2014 (Dissertation Advisor along w/A. Mignerey)
Lauren Stevens	2013-2014 (Dissertation Advisor, left to work elsewhere)

vii. Other Universities

G. Loock	1988-1992 (advising on research) Max-Planck-Institut, Chemie, Germany
M. Handler	1992-1998 (advising on research) Research School of Earth Science, Australian National University
M. Barth	1993-1998 (Dissertation Co-Advisor along w/R. Rudnick) Department of Earth & Planetary Sciences, Harvard University
C.-T. Lee	1993-1998 (Dissertation Committee, advising, conducting analyses in my lab) Department of Earth & Planetary Science, Harvard University
K. Matthews	2003-2008 (Dissertation Co-Advisor along w/A. Grottoli) Earth & Environmental Science, University of Pennsylvania
H. Watson	2003-2008 (Dissertation Committee, advising, conducting analyses in my lab) Earth & Environmental Science, Rensselaer Polytechnic Institute
Antti Kallio	2005 (April) Research School of Earth Sciences, The Australian National University) Advisor PhD, Mid-Term Review, Canberra, Australia.
Jan Matas	2012 (March) Habilitation examination committee, Ecole Normale Supérieure de Lyon, Lyon, France.
Zachary Frone	Awarded Ph.D. 2014 (Dissertation Committee, advising on research) PhD examination (December 2014), Mid-Term Review (September 2012, Department of Earth Sciences, Southern Methodist University, Dallas, Texas

vi. Ph.D. Mid-Term/Orals Committee

Adam Simon	(Geology, University of Maryland) - advising
Fangzhen Teng	(Geology, University of Maryland) - Dissertation Advisor
A. Gangopadhyay	(Geology, University of Maryland) - advising

David Johnston	(Geology, University of Maryland) - advising
Antti Kallio	(Research School of Earth Sciences, The Australian National University) Advisor PhD, Mid-Term Review, Canberra, Australia, 7 April '05
Thomas Ireland	(Geology, University of Maryland) - advising
Kateryna Klochko	(Geology, University of Maryland) - advising
Ricardo Arévalo	(Geology, University of Maryland) - Dissertation Advisor
Jeremy Bellucci	(Geology, University of Maryland) - Dissertation Advisor
Lin Qiu	(Geology, University of Maryland) - Dissertation co-Advisor
Brian Tattitch	(Geology, University of Maryland) - advising
Yu Huang	(Geology, University of Maryland) - Dissertation co-Advisor
Xiaoming Liu	(Geology, University of Maryland) - Dissertation co-Advisor
Miriam Galenas/Sharp	(Geology, University of Maryland) - advising
Nicholas Sharp	(Chemistry, University of Maryland) - Dissertation co-Advisor
Zachary Frone	(Earth Sciences, Southern Methodist University) – advising
Ming Tang	(Geology, University of Maryland) - Dissertation co-Advisor
Emily Worsham	(Geology, University of Maryland) - advising
Gregory Archer	(Geology, University of Maryland) - advising

vii. Dean's Representative for Dissertation Defense

2006	Emren N. Esenturk, Department of Chemistry & Biochemistry
2008	Jacob Anderson, Department of Physics
2009	Marvourneen K. Dolor, Department of Chemistry & Biochemistry
2009	Matthew J. Wetstein, Department of Physics
2009	Andrew Philip Roth, Department of Physics
2010	Warren G. Huelsnitz, Department of Physics
2011	Matthew S. Paoletti, Department of Physics
2013	Yung-Ruey Yen, Department of Physics
2014	Anna V. Sberegaeva, Department of Chemistry & Biochemistry
2014	Xiulin Mao, Dept of Measurement, Statistics and Evaluation, College of Education
2014	Chanel N. Tissot, Department of Nuclear Engineering

d. Extension Activities

Developed a supplemental 5th grade Math Enrichment Program at University Park Elementary School (UPES, 2002-2003) with Mr. P. Pascual. This bi-weekly program was held during school hours, involving a 1-hour supplemental math course for ~20 advanced students. Mr. Pascual and I jointly carried out the development, presentation (to Dr. Whitehead, Head of the Math Program for Prince George's County and faculty from UPES), and implementation of the program.

III. SERVICE

a. Professional

i. Offices and committee memberships held in professional organizations

2015

President-elect, Volcanology Geochemistry Petrology Section, American Geophysical Union

Co-Chair – Scientific Committee, International Summer Institute, "*Using Particle physics to understand and image the Earth: geoneutrinos, muonography, cosmogenic nuclides*", L'Aquila, Italy, 11-21 July 2016

Advisory committee member of CIDER (Co-operative Institute for Dynamic Earth Research) (2012-present)

Member - Scientific Committee, Neutrino Geosciences 2015, Workshop at Paris, France

Member - Robert Wilhelm Bunsen Medal Committee, European Geosciences Union

Member - Advisory Committee, Institute for Study of the Earth's Interior, Okayama University, Misasa, Japan

2014

Member - Search Committee, COMPRES, NSF-funded data facility

Member - Policy Committee, IEDA (Integrated Earth Data Applications), NSF-funded data facility

Advisory committee member of CIDER (Co-operative Institute for Dynamic Earth Research) (2012-present)

Chair - Bowen Medal Committee, VGP Section, American Geophysical Union

Member - Robert Wilhelm Bunsen Medal Committee, European Geosciences Union

Co-organizer, Geo-neutrino Working Group Meeting, at the Kavli Institute of Theoretical Physics, UCSB

Co-organizer, instructor and participant at the CIDER (Cooperative Institute for Dynamic Earth Research) 2014 summer school on "Planetary Dynamics" the Kavli Institute of Theoretical Physics, UCSB

Member - Advisory Committee, Institute for Study of the Earth's Interior, Okayama University, Misasa, Japan

Organizer of session on "Composition of the Earth" at the 24th Goldschmidt Conference, Sacramento, California 2014

2013

Associate Chair - Policy Committee, IEDA (Integrated Earth Data Applications), NSF-funded data facility

Advisory committee member of CIDER (Co-operative Institute for Dynamic Earth Research) (2012-present)

Proposing Team member for the CIDER (Co-operative Institute for Dynamic Earth Research) program 2014 at the Kavli Institute of Theoretical Physics, UCSB: program title "Dynamics of Planetary Interiors"

Chair - Bowen Medal Committee, VGP Section, American Geophysical Union

Member - Robert Wilhelm Bunsen Medal Committee, European Geosciences Union

Member - Annual Meeting Committee, COMPRES (Consortium for Materials Properties Research in Earth Sciences)

Instructor and participant at the CIDER (Cooperative Institute for Dynamic Earth Research) 2013 summer school on ""From mantle to crust: continental formation and destruction"" at UC Berkeley

Member - Advisory Committee, Institute for Study of the Earth's Interior, Okayama University, Misasa, Japan

Member - Scientific Committee, Neutrino Geosciences 2013, Workshop at Takayama, Japan

Member - International Advisory Committee, Applied Anti-neutrino Physics 2013, Seoul, South Korea

Organizer of session on "Composition of the Earth" at the 24th Goldschmidt Conference, Sacramento, California 2014

Organizer of session on "Composition of the Earth" at the 23rd Goldschmidt Conference, Florence, Italy 2013

2012

Associate Chair - Policy Committee, IEDA (Integrated Earth Data Applications), NSF-funded data facility

Chair - Nominations Committee, VGP Section, American Geophysical Union

Member - Robert Wilhelm Bunsen Medal Committee, European Geosciences Union

Member - Advisory Committee, Institute for Study of the Earth's Interior, Okayama University, Misasa, Japan.

Instructor and participant at the CIDER (Cooperative Institute for Dynamic Earth Research) 2012 summer school on "Deep Time: How did early Earth become our modern world?" at the Kavli Institute of Theoretical Physics, UCSB

Member - Neutrino Geosciences 2013, Workshop at Takayama, Japan, Scientific Committee

2011

Member - Policy Committee, IEDA (Integrated Earth Data Applications), NSF-funded data facility

Chair - Nominations Committee, VGP Section, American Geophysical Union

Instructor and participant at the CIDER (Cooperative Institute for Dynamic Earth Research) 2011 summer school on "Dynamics of Mountain Building" at UC Berkeley

Member - Advisory Committee, Institute for Study of the Earth's Interior, Okayama University, Misasa, Japan.

Fall '11 AGU Meeting, Union Session U12: Composition, Structure and Heat Budget of the Earth Conveners: Ed Garnero, Claude Jaupart, Shijie Zhong and Bill McDonough

2010

Chair - Nominations Committee, VGP Section, American Geophysical Union

Member – Independent Laboratory Review, Laser Ablation for Chemical Analysis, at the Lawrence Berkeley National Laboratory

Member – International organizing committee, Neutrino Geosciences, Workshop at Gran Sasso National Lab, Italy (October 2010).

Instructor and participant at the CIDER (Co-operative Institute for Deep Earth Research) 2010 summer school on "Water and volatiles in the Earth's mantle and core" at the Kavli Institute of Theoretical Physics, UCSB

Fall '10 AGU Meeting, Union Session U15: Dynamic Earth: Plates, Plumes and Mantle Convection Convener: Mark Richards, William McDonough, Michael Gurnis

2009

Chair and Member - Nominations Committee, VGP Section, American Geophysical Union

Scientific Organizing Committee - 8th International Sector Field Inductively Coupled Plasma Mass Spectrometry Conference (Ghent, Belgium, 2009).

Fall '09 AGU Meeting, Union Session U03: Consequences and Fraction of Recycled Basalt in the Mantle. Convener: Lars Stixrude, Sujoy Mukhopadhyay, Barbara Romanowicz and Bill McDonough

2008

Neutrino Detection for Nuclear Monitoring, meeting on the science, technology and application of anti-neutrino detection for the sciences and national security applications, *Organizer*, University of Maryland.

Neutrino Geosciences, Workshop at Sudbury Neutrino Observatory, Canada, PI and organizer, NSF funded workshop (October 2008).

Theme coordinator, V.M. Goldschmidt 2008 (Planets) Vancouver, BC, Canada.

Fall '08 AGU session organizer, Linking Earth's Deep Interior to the Surface: Earth Evolution, with Clint Conrad, Sheijie Zhong, and Cecile Grigne

Scientific Organizing Committee - 7th International Sector Field Inductively Coupled Plasma Mass Spectrometry Conference (Rutgers University, 2008)

Scientific Organizing Committee - 8th International Sector Field Inductively Coupled Plasma Mass Spectrometry Conference (Ghent, Belgium)

Chair and Member - Tellers Committee, American Geophysical Union

2007

Goldschmidt 2007 (Cologne, Germany) Theme co-coordinator (Earth's mantle)

DOANOW: Deep Ocean AntiNeutrino Observatory Workshop, meeting on the development and application of a anti-neutrino detector for the deep ocean, *Co-organizer*, Honolulu, Hawaii (March)

Committee member - National Screening Committee for the US State Department

Panelist - Researcher Focus Group, of the Society for Scholarly Publishing

Committee Chair, and member - Tellers Committee, American Geophysical Union

Committee Chair - VGP 'Union Awards' Committee, American Geophysical Union

Organizing Committee Chair for *Geochemical advances in the past 30 years: an MPI perspective*, a meeting at MPI, Mainz, August 2007

Committee member - EarthChem Coordinating Committee (EarthChem is an NSF–funded cyber-infrastructure initiative with associated international collaborators)

2006

Secretary – Geological Society of Washington

NIST Meeting, Accurate High Precision Isotopic SRM Workshop (June 6-7, 2007)

Task Group committee member and Special Session convener: *Shen-su Sun Symposium – Geochemical reservoirs and mantle convection*, (Symposium S5-07) 16th Annual Goldschmidt Conference, Melbourne, Australia, August 2006.

Spring '06 AGU Meeting, Union Session 12: Geoneutrinos: A New Tool for the Study of the Solid Earth. Conveners: Bill McDonough, John Learned, Stephen Dye, Seth Stein and V. Rama Murthy.

Fall '06 AGU Meeting, Union Session 01: Consequences of Subduction and the Evolution of the Mantle. *Conveners*: Rhea K. Workman, Alex Sobolev, Magali Billen, Bill McDonough and Norman Sleep.

Committee Member - National Screening Committee for the US State Department

Panelist - Researcher Focus Group, Society for Scholarly Publishing

Committee Member - Tellers Committee, American Geophysical Union

Committee Chair - VGP 'Union Awards' Committee, American Geophysical Union

Committee Member - EarthChem Coordinating Committee (EarthChem is an NSF-funded cyber-infrastructure initiative with associated international collaborators)

2005

Scientific Committee, *The Origin, Evolution and Present State of Subcontinental Lithosphere*, an IUGS-SECE (Commission on Solid Earth Composition & Evolution) Conference, Beijing, China, June 25-30, 2005.

Guest Chairperson: *Isotopic and Analytical Geochemistry*, Annual Symposium on Geosciences Research Program (DOE: Office of Basic Energy Sciences) Gaithersburg, Maryland, June 5-6, 2005.

International Advisory Committee: *Neutrino Geophysics*, Workshop, Honolulu, Hawaii, December 14-16, 2005.

Member: EarthChem Coordinating Committee

Member: Tellers Committee, American Geophysical Union

Special Session organizer: *Effects of Metasomatism*, (Symposium SS-84) 15th Annual Goldschmidt Conference, Moscow, Idaho, 20 - 25 May 2005

Member - Task Group on the "Convecting Mantle", 16th Annual Goldschmidt Conference, Melbourne, Australia

Vice President, Geological Society of Washington, 2005

2004

Convener, The Deep Earth Engine: Geophysics and Geochemistry, Union Session (U04) American Geophysical Union, Fall Meeting 2004, with co-conveners Louise Kellogg, Bernie Wood, Barbara Romanowicz and Uli Christensen.

Member, Honors Committee, VGP Section, American Geophysical Union

Member, Steering Committee, CSEDI (Cooperative Studies of the Earth's Deep Interior) Science Work Plan for NSF

2003-2004

Co-Organizer and session convener, CSEDI Workshop, Science Planning meeting, February, 2004, UCSD/Scripps, La Jolla, CA

2003

Co-Organizer and Convener, VGP-session Symposium, Fall AGU

2002

Member, F.W. Clarke Award Committee, Geochemical Society

2001-2003

Co-Organizer, GERM IV Workshop, May 2003, Ecole Normale, Lyon, France

2000

Scientific Committee, Geoanalyses 2000, Pont-à-Mousson, France

1999-2000

Co-Principal Organizer, GERM III Workshop, March 2000, UCSD/Scripps, La Jolla, CA

1998-1999

Organizing Committee, Goldschmidt Conference 1999, Harvard University

1998-2001

Executive Board Member, G^3: Geochemistry, Geophysics and Geosystems

1997-1998

Co-Principal Organizer, GERM II Workshop, March 1998, UCSD/Scripps, La Jolla, CA

Principal Organizer, Continental Roots Workshop, October 1997, Harvard University, MA

1996-1999

Co-President, IASPEI-IAVCEI Inter-association Commission on Physical and Chemical Properties of Materials of the Earth's Interior

Program Committee, Geochemical Society (Chairman 97-99)

1995

IUGG Symposium Convener, Physical and Chemical Evolution of the Mantle

1994-1992

Founding Director and Lecturer, ANU Geochemistry Summer School

1993

Acting Group Leader, Petrochemistry Group, RSES, ANU

IAVCEI Symposium Convener, Chemical Evolution of the Mantle

1993-1995

Coordinating Secretary, IAVCEI-IASPEI the inter-association Commission on Physical and Chemical Properties of Materials of the Earth's Interior

1991-1992

Chairman of Faculty, Australian National Univ., Research School Earth Sciences

ii. Reviewing activities for agencies

I review approximately 10 to 12 grant proposals per year mostly for the National Science Foundation and NASA, and less frequently for National Research Council Canada, Australian Research Council, NERC Britain, ETH University/Swiss funding, and Department of Energy.

b. Campus

i. Departmental

Graduate Committee (2000-present)

Faculty Search Committee (Assistant Professor - Biogeoscience position, 2000-2001)

Faculty Senior Thesis Committee (2014-present)

Director of Graduate Studies - 2008-present (not sabbatical year 2010-2011)

ii. College

Review of Candidates for Assistant Dean for External Relations

CMPS APT Committee (Fall '05- Spring '06)

Chair, College APT Committee (Fall '06- Spring '07)

Member, Search Committee for Facilities Director, CMPS

CMPS Course Management System (CMS) RFP Faculty Committee

iii. University

Geology Department Representative, College Park, University Senate (Fall '08-Spring '09)

University Honors Council (Fall '04-Spring '06)

University Graduate Council (2003-2006; 2009-2012)

Summer Research Fellowship Committee 2012

Fellowship Committee (sub-committee of the Graduate Council)

Faculty Affairs Committee (sub-committee of the Graduate Council)

Flagship Fellowship Committee (2014)

iv. iv. Other

Maryland Day 2004-2014 (excepting 2011): Minerals table, Geochemistry Lab tours, and chemical analyses of drinking water for the public (last Saturday in April, 10:00 AM – 4:00 PM)

c. Community, State, National

i. Public Outreach

2003 and onwards - Lauren Thompson, Kandyce Jackson, Madara Jayatilake, Paraoan, Jett, Annie Kielman, and Jacob Siegel all local area High School student interns in the Plasma Mass Spec. Lab.

2005 - BBC Radio 4 & World Series, interview (circa 15 minutes) on the program *Science in Action* (29 July 2005) – topic: Geoneutrinos & what's inside the Earth.

2005 - Frankfurter Allgemeine Zeitung, interview with Dr. Ulf von Rauchhaupt for an article – Neutrinos: In Szintillationsgewittern, Der erste Nachweis von Neutrinos aus dem Erdinneren ist noch keine Revolution für die Geologie. Aber ein kleiner Triumph der Experimentalphysik. 02.08.2005

2006 - 2010 - Assisted with 3 Science Fair projects (2 Middle School and 1 High School) - (consultation and sample analyses and later judging of posters not of my students).

2006 and onwards - Provided Plasma Laboratory tours and analyzed drinking water samples during the University of Maryland's "Maryland Day" festivities.

2009- Interview for Science News: For a big view of inner Earth, catch a few … Geoneutrinos, By Diana Steele, January 17th, 2009; Vol.175 #2 (p. 16)

2010 – Interview for The Philadelphia Inquirer by Faye Flam on the recent results from the Borexino experiment: "Physicists hunt for a trace of the elusive, invisible geoneutrino" http://phys.org/news/2010-07-physicists-elusive-invisible-geoneutrino.html

2011 - Marfa Public Radio: a radio interview on defining and explaining the nature and use of electron anti-neutrinos as well as the research being conducted worldwide on neutrinos/anti-neutrinos for Marfa Public Radio's Talk At Ten program, November 22, 2011

2012 - A French magazine (Pour la Science, like Scientific American) published my Physics Today article completely translated into French: Des Neutrinos pour sonder l'interieur de la Terre

2012 - German Radio (Detschlandfunk) an article entitled: Der Blick ins Erdinnere (by) Von Dagmar Röhrlich, reviewed the field and talked about developments in geology

2012 - The cover and main article of New Scientist magazine - 28 April 2012 (Neutrinos: messengers from the underworld by Anil Ananthaswamy) reviewed the field and talked about developments in geology

2012 – Ondřej Šrámek and W F McDonough produced a Wikipedia page on geoneutrino (http://en.wikipedia.org/wiki/Geoneutrino)

2013 - Interviews and coordination between Ondřej Šrámek and Emma Marris (Science Writer) leads to a highlight (http://www.nature.com/nature/journal/v492/n7429/full/492315c.html)

2013 – Interviews and coordination with Alexandra Witze (*Nature* Science writer) leads to a 1-page spread in Nature (http://www.nature.com/news/detectors-zero-in-on-earth-s-heat-1.12707) quoted for a summary of the Neutrino Geosciences Meeting, held in Takayama, Japan, 21-23 March, where KamLAND and Borexino scientists reported seeing geoneutrinos in meaningful quantities.

2013 – Interviews and coordination with Erin Wayman (*Science News* Science writer) (http://www.sciencenews.org/view/generic/id/349930/description/Early_Earths_chlorine_blown_away_by_giant_impacts) quoted in Science News, April 24, in an article on a recently published research by David Draper and Zachary Sharp in Earth and Planetary Science Letters, April 15, on missing chlorine on Earth's surface.

2013/14 – Interviews and coordination with Jane Qiu (Freelance Science writer in Beijing, China) regarding the JUNO Neutrino experiment, which also includes a geoneutrino component (https://www.sciencemag.org/content/343/6171/590.summary). I met with Jane Qiu before and after the 3rd JUNO meeting held on 13-15 Jan 2014 in Kaiping, China.

2014, May – Interviews with Amanda Solliday (Science writer for Symmetry magazine [http://www.symmetrymagazine.org], Fermi lab) regarding about interdisciplinary research projects that involve particle physicists and scientists from other disciplines. Her article appeared in the Fall of 2014 issue of Symmetry.

2014, May – Interview with Frank Grotelueschen (science journalist based in Germany) regarding about news in geoneutrino research. He is writing a story for Bild der Wissenschaft Magazine (Germany, http://www.wissenschaft.de/) will appear in the February issue, 2015.

2015, September – Interviews regarding recent NATURE *Scientific Reports* article: with Faye Flam *MIT Technical Review*, Alexa Lim (Associate Producer) *Science Friday*, and others as recorded by *Altmetrics*: http://www.altmetric.com/details/4457967/news