CURRICULUM VITAE
William F. McDonough - January 2009

1. PERSONAL INFORMATION

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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:

2005-present	Professor, University of Maryland, College Park, MD
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, USA

2. Research, Scholarly, and Creative Activities

a. Books

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.

ii. *Chapters in Books*

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

b. Articles in Refereed Journals

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.

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.

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.

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.

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.

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

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*).

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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.

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

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.

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.

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.

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.

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.

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*).

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.

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.

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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.

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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.

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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.

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.

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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.

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.

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.

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.

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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.

McDonough, W.F. (2003) Compositional Model for The Earth's Core, pp547-568. 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, pp-547-568.

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.

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.

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.

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.

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.

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.

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.

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.

McDonough, W.F. (2005) Earth sciences - Ghosts from within. *Nature* 436 (7050) 467-468.

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.

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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.

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.

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Kefeng Qin, Lili Zhao, Richard D. Ash, William F. McDonough, and Richard Y. Zhao (2009**)** ATM-mediated transcriptional elevation of prion to copper-induced oxidative stress. *J. Biol. Chem*., 10.1074/jbc.M808410200. (in Press; published online ahead of print December 8, 2008)

Papers in Review:

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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.
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2004 Max Plank Institute, Mainz, Germany, *Trace elements in the Earth's Core-Mantle System*, A fest in Honor of Dr. K.P. Jochum.
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American Geophysical Union, *Siderophile and chalcophile elements in synthetic and natural materials*. AGU, Spring Meeting.

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

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Corgne, A., Keshav, S., McDonough, W.F. and Fei, Y. (2005) Element partitioning during core-mantle differentiation in a magma ocean: New high-pressure data on CI- and EH-chondrite model compositions. *Eos Trans. AGU, 86*(52), Fall Meet. Suppl., Abstract MR13A-6.

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Yang, J., Goldstein, J.I., Sherman, B., Corrigan, C.M., McCoy, T.J., Walker, R.J., Chabot, N.L. and McDonough, W.F. (2006) How the Fuzzy Creek IVA iron got so fuzzy. Lunar and Planetary Science XXXVII, 1308.pdf.

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Wilmot, M.S., Candela, P.A., Piccoli, P.M., Simon, A.C. and McDonough, W.F. (2006) Examination of the Behavior of Bismuth in Shallow-Level Hydrothermal Ore Systems: Constraints Based on Hydrothermal Experiments at 800°C and 100 Mpa. *Eos Trans. AGU, 87*(36), Jt. Assem. Suppl., Abstract U41A-04.

Halama, R., McDonough, W.F., Rudnick, R.L., Trumbull, R., Klaudius, J., Keller, J. and Taubald, H. (2006) Lithium Isotope Systematics of Rift-related Alkaline Igneous Rocks. *Eos Trans. AGU, 87*(36), Jt. Assem. Suppl., Abstract V32A-06.

Aeiker, D.M., Mansur, A.T., Rudnick, R.L., Piccoli, P. and McDonough, W.F. (2006) Deducing the depth of origin of granulite xenoliths from zircon-rutile thermometry: a case study from Tanzania. *Eos Trans. AGU, 87*(36), Jt. Assem. Suppl., Abstract V41A-03.

Aulbach, S., Rudnick, R.L. and McDonough, W.F. (2006) Modification of On- and Off-Craton Mantle Lithosphere Beneath the East African Rift, Tanzania. *Eos Trans. AGU, 87*(36), Jt. Assem. Suppl., Abstract V32A-05.

Arévalo, R.D and McDonough, W.F. (2006) W in the BSE, DM, CC and Core. *Eos Trans. AGU, 87*(36), Jt. Assem. Suppl., Abstract V31A-04.

e. Contracts and Grants

i. University of Maryland

NSF EAR 0841814 ($23,498) "Workshop on Neutrino Geoscience 2008". 8/1/2008 - 7/31/2009

NSF IIS 0754061 ($28,927) "Second Workshop on Neutrino Detection for Nuclear Monitoring" 9/15/08 - 8/31/09

NSF EAR 0337621: ($269,936) “Siderophile and Chalcophile elements in the Earth”. Investigator: W.F. McDonough: 01/01/04-12/31/07.

NASA NNG04GG17G: ($40,000) “Chemical and Isotopic Compositions of Meteorites”. Investigator: W.F. McDonough**,** Duration: 04/01/03-03/31/06.

NSF EAR 0208012: ($279,922) “Li Isotopic Investigations of the Crust and Mantle”. Investigators: R.L. Rudnick, W.F. McDonough and P. Tomascak: 06/01/02-05/31/05.

NSF EAR 0106719: ($50,000) “Li Isotopic Investigations of the Crust and Mantle". R.L. Rudnick, W.F. McDonough and P. Tomascak: 08/01/01-07/31/02.

NSF EAR 0196194: ($57,747) “Technician Support: EPS-ICPMS Facility at Harvard”. Investigators: R.L. Rudnick and W.F. McDonough: 09/01/00-12/31/01.

NSF EAR 0004128: ($140,000) “Technician Support: ICP-MS Facility at UMD”. Investigators: R.L. Rudnick and W.F. McDonough: 07/15/01-06/30/03.

NSF EAR 0004095: ($184,197) “Acquisition of an Inductively Coupled Plasma Mass…”. Investigators: W.F. McDonough and R.L. Rudnick: 04/15/01-06/30/03.

*ii. 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.

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

f. Fellowships, Prizes, and Awards.

ISI Highly Cited Paper (April 2005), The composition of the Earth (*Chemical Geology*, **120***:* 223-253*)*
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, and Reviewing Activities for Journals and Other Learned Publications

i. Editorships

1997-1999 Co-Editor (with R. van der Hilst), CONTINENTAL ROOTS, Developments in Geotectonics, 24, Elsevier.
Editorial Board, GEOLOGY

1998-2001 Executive Board Member, G^3: Geochemistry, Geophysics and Geosystems

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.

2006 Associate Editor-*Journal of Geophysical Research-Solid Earth,* AGU

2007 Associate Guest Editor, *Journal of Geophysical Research*

2007-present Advisory Board, COMPRESS

ii. Society memberships

American Geophysical Union
Geochemical Society
Mineralogical Society of America
Geological Society of America
Meteoritical Society
Geological Society of Washington

iii. Reviewing Activities

Science
Earth and Planetary Sciences Letters
Geochemistry, Geophysics and Geosystems
Geochimica et Cosmochimica Acta
Chemical Geology
Journal of Analytical Atomic Spectroscopy
Geostandards Newsletter
Contributions to Mineralogy and Petrology
American Mineralogist.

3. TEACHING, MENTORING, AND ADVISING

a. Courses taught in the last five years

i. General

2001-2009
GEOL 471/671 Geochemical Methods of Analysis (~6 students/semester)

2003, '04, '05, '08
GEOL 100 Introduction to Physical Geology (~110 students/semester)

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

2007, 2008
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 Masters 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.

Students	**Major**	**Duration**
Aeiker, Dusty	Geology	04 - '06
Baker. Emily	Marine Biology	02 - '04
Boron-Brenner, Lucas*	Chemistry	09 - present
Carter, Brooke	Geology	05
Chung, Elena	Chemistry	04 - '06
Drymala, Suzanne	Geology	06
Drysdale, Peter	unknown	03
Fitzgerald, Marc*	Chemistry	07 - present
Gelinas, Amy	Geology	01
Gilbert, Laura	Geology	03
Headley, Rachel	Physics	03 - '04
Laszlo ,Istvan	Physics	01 - '03
Liu, Fang	Computer Engineering (Graduate Student)	02 - '03
Losey, Cara	Civil Engineering	04 - '06
Luong, Mario	Chemistry	06 - '07
McKenney, Sarah	Physics	02
McLeaf, Ashley	Geology	04 - '06
Njo, Heather	Environmental Sciences	03 - '04
Oberoi, Ankur	Computer Sciences	06
Puls, Brendan	Geology	01 - '03
Saslow, Sarah*	Chemistry	08 - present
Shetty, Purushottam	Computer Engineering (Graduate Student)	04 - '06

***Current students**

iii. Other students

Mr. Madara Jayatilake	Walt Whitman High School, Uranium isotope partitioning
Ms. Kandyce Jackson	Oxon Hill High School: Ni isotopes in Fe-meteorites: search for live ^{60}Fe
Mr. Jett Paraoan	Oxon Hill High School: Water analyses in the Washington, DC Area
Ms. Lauren Thompson	Charles Flowers High School: Trace element content of domestic house paint
Ms. Annie Kielman	Eleanor Roosevelt High School: Trace element content of varieties of quartz
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)

David Cook	Awarded M.S. 2001 (Thesis Committee Member, advised on research)
Yan Chen	2005 - present (Advising)
Jenise Honesto	Awarded M.S. 2006 (Thesis Advisor)
Adam Mansur	Awarded M.S. 2008 (Thesis Committee Member)

(Department of Chemistry)

M. Dolor	Awarded M.S. 2005 (advising on research, conducting analyses in my lab)
E.N. Esenturk	(Graduate student)

vi. Doctoral Advising - University of Maryland
Department of Geology

Adam Simon	Awarded Ph.D. 2003 (Dissertation Committee Member, advising, conducting analyses in my lab)
Fangzhen Teng	Awarded Ph.D. 2005 (Dissertation Advisor)
A. Gangopadhyay	Awarded Ph.D. 2004 (Dissertation Committee Member, advising, conducting analyses in my lab)
David Johnston	Awarded Ph.D.2007 (Dissertation Committee Member)
Thomas Ireland	2003-present - Ph.D. Candidate (Dissertation Committee Member)
Kateryna Klochko	2003 - present - Ph.D. Candidate (Dissertation Committee Member)
Kathleen Scheiderich	2004 - present - Ph.D. Candidate (Advising)
Ricardo Arévalo	2005 - present - Ph.D. Candidate (Dissertation Advisor)
Michael Mengason	2007 - present (Advising)
Jeremy Bellucci	2006-present (Dissertation Advisor)
Lin Qiu	2006-present (Advising)

vii. Other Universities

Antti Kallio	2005 (April) Research School of Earth Sciences, The Australian National University) Advisor PhD, Mid-Term Review, Canberra, Australia.
H. Watson	2003-present (Thesis Committee, advising, conducting analyses in my lab) Earth & Environmental Science, Rensselaer Polytechnic Institute
K. Matthews	2003-present (Thesis Committee, advising, conducting analyses in my lab) Earth & Environmental Science, University of Pennsylvania
C.-T. Lee	1993-1998 (Thesis Committee, advising, conducting analyses in my lab) Department of Earth & Planetary Science, Harvard University
M. Barth	1993-1998 (Thesis Committee, advising, conducting analyses in my lab) Department of Earth & Planetary Sciences, Harvard University
M. Handler	1992-1998 (advising on research) Research School of Earth Science, Australian National University
G. Loock	1988-1992 (advising on research) Max-Planck-Institut, Chemie, Germany

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

Thomas Ireland	(Geology, University of Maryland) - advising
Katya Klochko	(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

ix. Dean's Representative for Dissertation Defense

2008 Jacob Anderson, Physics Department
2009 Marvourneen K. Dolor, Chemistry Department

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 and involved 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.

4. SERVICE

a. Professional

i. Offices and committee memberships held in professional organizations

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.

PI and organizer, NSF funded workshop: Neutrino Geosciences, Sudbury Neutrino Observatory, Canada/

Goldschmidt 2008,(Planets) Vancouver, British Columbia, Canada.

Theme coordinator, Goldschmidt 2008 (Planets) Vancouver, British Columbia, Canada.

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

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)

2006

Secretary, Geological Society of Washington, 2006

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

Spring 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 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)
Secretary - Geological Society of Washington
Goldschmidt 2006 (Melbourne, Australia): Task Group committee member and Session convener (S5-07: Shen-su Sun Symposium – Geochemical reservoirs and mantle convection)
AGU Union Session – Spring ’06 - U12: Geoneutrinos: A New Tool for the Study of the Solid Earth
AGU Union Session – Fall ’06 - U01: Consequences of Subduction and the Evolution of the Mantle

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, The 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)
Graduate Director - 2008-present

ii. College

Review of Candidates for Assistant Dean for External Relations
CMPS APT Committee
Chair, College APT Committee
Member, Search Committee for Facilities Director, CMPS
CMPS Course Management System (CMS) RFP Faculty Committee

iii. University

Geology Department Representative, College Park Senate
University Honors Council
University Graduate Council
Fellowship committee (sub-committee of the Graduate Council)
Faculty Affairs committee (sub-committee of the Graduate Council)

iv. Other

Maryland Day 2004, Geochemistry Lab tours and chemical analyses of drinking water for the public (10:00 A.M. – 4:00 P.M.)

c. Community, State, National

i. Public Outreach

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.
Lauren Thompson, High School student intern, Charles H. Flowers High School, Springdale, MD. Project title: Heavy metal contaminates in commonly used building paints.
Assisted (consultation and sample analyses) with 3 Science Fair projects - 2 Middle School and 1 High School student projects.
Provided Plasma Laboratory tours and analyzed dinking water samples during the University of Maryland's "Maryland Day" festivities.