CURRICULUM VITAE

Claude T. Herzberg

BORN: January 1, 1949
Edmonton, Alberta, Canada

CURRENT STATUS: Citizenship: Canadian and Naturalized American

EDUCATION

University of Alberta,
Edmonton, Alberta, Canada
B.Sc. Honours (1970) in Geology

Edinburgh University,
Edinburgh, Scotland, U.K.
Ph.D. (1975) in Geology
(Advisor: M.J. O'Hara)

PROFESSIONAL EXPERIENCE

1968	Geological Field Assistant for Eldorado Nuclear Ltd., Canada
1969	Geological Field Assistant for Cominco Explorations Ltd., Canada
1970	Geological Field Leader for Vestor Explorations Ltd., Canada
1970 - 1975	Teaching Assistant, Edinburgh University
1975 - 1977	Postdoctoral Research Fellow, University of Western Ontario
1977 - 1979	Postdoctoral Research Associate, Harvard - Smithsonian Center for Astrophysics
1979 - 1980	Visiting Research Scientist, Lunar and Planetary Institute
1980 - 1984	Assistant Professor, Dept. Geological Sciences, Rutgers University
1984 - 1993	Associate Professor, Dept. Geological Sciences, Rutgers University
1992 - 1995	Associate Editor, American Mineralogist
1993 – 1999	Adjunct Professor, Department of Earth and Space Sciences, State University of New York Stony Brook, New York
1993- present	Professor I, Department of Earth and Planetary Sciences, Rutgers University

PUBLICATIONS

1. Opinion Articles for Nature, Science, and Geology (Commissioned by editors, not peer–reviewed)

Herzberg, C. (2014). Archaean drips. Nature Geoscience 7, 7-8.
Herzberg, C. (2011). Basalts as temperature probes of Earth's mantle. Geology 39, 1179-1180.
Herzberg, C. (2007). Food for a volcanic diet. Science 316, 378-379.
Herzberg, C. (2005). Big lessons from little droplets. Nature 436, 789-790.
Herzberg, C.T. (1987). High-pressure melting studies. Nature 328, 472.

2. Peer – Reviewed Papers in Journals and Chapters in Books

Herzberg, C. (2016). Petrological evidence from komatiites for an early Earth carbon and water cycle. Journal of Petrology 57, 2271-2288.

Herzberg, C., Vidito, C. and Starkey, N.A. (2016). Nickel-cobalt contents of olivine record origins of mantle peridotite and related rocks. American Mineralogist 101, 1952-1966.

Gavrilenko, M., Herzberg, C., Vidito, C., Carr, M.J., Tenner, T. and Ozerov, A. (2016). A calcium-in-olivine geohygrometer and its application to subduction zone magmatism. Journal of Petrology 57, 1811-1832.

Trela, J., Vidito, C., Gazel, E., Herzberg, C., Class, C. Whalen, W., Jicha, B., Bizimis, M. and Alvarado, G. (2015). Recycled crust in the Galapagos plume source at 70 Ma: implications for plume evolution. Earth and Planetary Science Letters 425, 268-277.

Herzberg, C. and Asimow, P.D. (2015). PRIMELT3 MEGA.XLSM software for Primary Magma Calculation: Peridotite Primary Magma MgO Contents from the Liquidus to the Solidus. Geochemistry, Geophysics, Geosystems 16, 563-578, doi:10.1002/2014G005631.

Herzberg, C., Cabral, R.A., Jackson, M.D., Vidito, C., Day, J.M.D., Hauri, E. (2014). Phantom Archean crust in Mangaia hotspot lavas and the meaning of heterogeneous mantle. Earth and Planetary Science Letters 396, 97-106.

Vidito, C., Herzberg, C., Gazel, E., Geist, D., Harpp, K. (2013). Lithological structure of the Galápagos Plume. Geochemistry, Geophysics, Geosystems 14, doi:10.1002/ggge.20270.

Herzberg, C., Asimow, P., Ionov, D., Vidito, C., Jackson, M.G., Geist, D. (2013). Nickel and helium evidence for melt above the core-mante boundary. Nature 493, 393-397.

Herzberg, C. and Rudnick, R. (2012). Formation of Cratonic Mantle: An Integrated Thermal and Petrological Model. Lithos 4, 4-15 (Special Craton Volume).

Nikulin, A., Levin, V., Carr, M., Herzberg, C. and West, M. (2012). Evidence for two upper mantle sources driving volcanism in Central Kamchatka, Earth and Planetary Science Letters, 321-322, 14-19.

Rooney, T.O, Herzberg, C. and Bastow, I.D. (2012). Elevated mantle temperature beneath East Afrcia. Geology, 40, 27-30.

Herzberg, C. (2011). Identification of Source Lithology in the Hawaiian and Canary Islands: Implications for Origins. Journal of Petrology 52, 113-146.

Gazel, E., Hoernle, K., Carr, M.J., Herzberg, C., Saginor, I., van den Bogaard, P., Hauff, F., Feignenson, M. and Swisher, C. III (2011). Plume-Subduction Interaction in Southern Central America: Mantle Upwelling and Slab Melting. Lithos 121, 117-134.

Ali, J.R., Fitton, J.G. & Herzberg, C. (2010). Emeishan large igneous province (SW China) and the mantle plume up-doming hypothesis. Journal of the Geological Society, London 167, 953-959.

Herzberg, C., Condie, K. and Korenaga, J. (2010). Thermal history of the Earth and its petrological expression. Earth and Planetary Science Letters 292, 79-88.

Herzberg, C. and Gazel, E. (2009). Petrological Evidence for Secular Cooling in Mantle Plumes, Nature 458, 619-622.

Herzberg, C. and Asimow P.D. (2008). Petrology of some oceanic island basalts: PRIMELT2.XLS software for primary magma calculation, Geochemistry, Geophysics, Geosystems 8, doi:10.1029GC002057.

Herzberg C., Asimow P.D., Arndt N., Niu Y., Lesher C.M., Fitton J.G., Cheadle M.J., Saunders A.D. (2007). Temperatures in Ambient Mantle and Plumes: Constraints from Basalts, Picrites and Komatiites, Geochemistry, Geophysics, Geosystems 8, doi:10.1029GC001390.

Herzberg, C. (2006). Petrology and thermal structure of the Hawaiian plume from Mauna Kea volcano. Nature 444, 605-609.

Polat, A., Herzberg, C., Münker, C., Rodgers, R., Kusky, T., Li, J., Fryer, B., and Delaney, J. (2006). Geochemical and petrological evidence for a supra-subduction zone origin of Neoarchean (ca. 2.55-2.50 Ga) peridotites, central orogenic belt, North China craton, Geological Society of America Bulletin 118, 771-784.

Herzberg, C. (2004). Partial crystallization of mid-ocean ridge basalts in the crust and mantle. Journal of Petrology 45, 2389-2405.

Herzberg, C. (2004). Geodynamic information in peridotite petrology. Journal of Petrology 45, 2507-2530.

Herzberg, C. (2004). Partial melting below the Ontong Java Plateau. In: Origin and Evolution of the Ontong Java Plateau. J.G. Fitton, J.J. Mahoney, P.J. Wallace, and A.D. Saunders (Editors), The Geological Society Special Publication 229, 179-183.

Feigenson, M.D., Bolge, L.L., Carr, M.J. and Herzberg, C.T. (2003). REE Inverse modeling of HSDP2 basalts: Evidence for multiple sources in the Hawaiian plume. Geochemistry, Geophysics, Geosystems 4(2), 8706, doi:10.1029/2001GC000271.

Sproule, R.A., Lesher, C.M., Ayer, J.A., Thurston, P.C. and Herzberg, C.T., (2002). Spatial and temporal variations in the geochemistry of komatiites and komaiitic basalts in the Abitibi greenstone belt. Precambrian Research 115, 153-186.

O'Hara, M.J. & Herzberg, C. (2002). Interpretation of trace element and isotope features of basalts: Relevance of field relations, petrology, major element data, phase equilibria and magma chamber modelling in basalt petrogenesis. Geochimica et Cosmochimica Acta 66, 2167-2191.

Herzberg, C. and O'Hara, M.J. (2002). Plume-associated ultramafic magmas of Phanerozoic age. Journal of Petrology 43, 1857-1883.

Herzberg, C., Ratteron, P., and Zhang, J. (2000). New experimental observations on the anhydrous solidus for peridotite KLB-1. Geochemistry, Geophysics, Geosystems (G-Cubed) 1, Paper number 2000GC000089.

Abbott, D., Sparks, D., Herzberg, C., Mooney, W., Nikishin, A., and Zhang, Y.S. (2000). Quantifying precambrian crustal extraction: The root is the answer. Tectonophysics 322, 163-190.

Herzberg, C. (1999). Phase equilibrium constraints on the formation of cratonic mantle. In: Mantle Petrology: Field Observations and High Pressure Experimentation: A Tribute to Francis R. (Joe) Boyd. Y. Fei, C. Bertka, and B.O. Mysen (Editors), Geochemical Society Special Publication # 6, The Geochemical Society, 241-257.

Arndt, N., Ginibre, C., Chauvel, C., Albarède, F., Cheadle, M., Herzberg, C., Jenner, G. and Lahaye, Y. (1998). Were komatiites wet? Geology 26, 739-742.

Herzberg, C. and O'Hara, M.J. (1998). Phase equilibrium constraints on the origin of basalts, picrites, and komatiites. Earth Science Reviews 44, 39-79.

Herzberg, C. and Zhang, J. (1998). Melting experiments in the systems CaO-MgO-Al_2O_3-SiO_2 and MgO-SiO_2 at 3 to 15 GPa. American Mineralogist 83, 491-500.

Herzberg, C. and Zhang J. (1997). Melting experiments on komatiite analogue compositions at 5 GPa. American Mineralogist 82, 354-367.

Hewins, R.H. and Herzberg, C.T. (1996). Nebular turbulence, chondrule formation, and the composition of the Earth. Earth and Planetary Science Letters 144, 1-7.

Herzberg, C. and Zhang, J. (1996). Melting experiments on anhydrous peridotite KLB-1: Compositions of magmas in the upper mantle and transition zone. Journal of Geophysical Research 101, 8271-8295.

Herzberg, C. (1995). Phase equilibria of common rocks in the crust and mantle. In: Handbook of Physical Constants, American Geophysical Union, T.J. Ahrens (Editor), 166-177.

Herzberg, C. (1995). Generation of plume magmas through time: an experimental perspective, Chemical Geology 126, 1-16.

Zhang, J. and Herzberg, C.T. (1994). Melting experiments on anhydrous peridotite KLB-1 from 5.0 to 22.5 GPa, Journal of Geophysical Research 99, 17,729-17,742.

Zhang, J. and Herzberg, C.T. (1994). Melting experiments on pyrope, $Mg_3Al_2Si_3O_{12}$, at 7 to 16.5 GPa, American Mineralogist 79, 497-503.

Zhang, J., Liebermann, R.C., Gasparik, T., Herzberg, C.T., and Fei, Y. (1993). Melting and subsolidus phase relations of SiO_2 at 9 to 14 GPa. Journal of Geophysical Research 98, 19,785-19,793.

Herzberg, C.T. (1993). Lithosphere peridotites of the Kaapvaal craton. Earth and Planetary Sciences Letters, 120, 13-29.

Herzberg, C.T. (1992) . Depth and degree of melting of komatiites. Journal of Geophysical Research, 97, 4521-4540, 1992.

Herzberg, C.T. and Gasparik, T. (1991). Garnet and Pyroxenes in the mantle: a test of the majorite fractionation hypothesis. Journal of Geophysical Research 96, 16,263-16,274.

McFarlane, E.A., Drake, M.J., and Herzberg, C. (1990). Element partitioning between mantle minerals and melt, and implications for the early thermal history of the Earth. Meteoritics 25, 384-385.

Herzberg, C.T., Gasparik, T. and Sawamoto, H. (1990). Origin of mantle peridotite: constraints from melting experiments to 16.5 GPa. Journal of Geophysical Research 95, 15,779-15,803.

Herzberg, C.T. and Ohtani, E. (1988). Origin of komatiite at high pressures. Earth and Planetary Science Letters 88, 321-328.

Herzberg, C.T., Feigenson, M.F., Skuba, C. and Ohtani, E. (1988). Majorite fractionation recorded in the geochemistry of peridotites from South Africa. Nature 332, 823-826.

Herzberg, C.T. (1987). Magma density at high pressure Part 1: The effect of composition on the elastic properties of silicate liquids. In Magmatic Processes: Physicochemical Principles, (Ed. B.O. Mysen) TheGeochemical Society Special Publication 1, 25-46, Lancaster Press.

Herzberg, C.T. (1987). Magma density at high pressure Part 2: A test of the olivine flotation hypothesis. In Magmatic Processes: Physicochemical Principles, (Ed. B.O. Mysen) The Geochemical Society Special Publication 1, 47-59, Lancaster Press.

Herzberg, C.T. (1986). Internal structures of the Earth and terrestrial planets: Constraints from ultrahigh pressure magma density and phase equilibrium relations. In Silicate Melts: Their Properties and Structure applied to problems in Geochemistry, Petrology, Economic Geology, and Planetary Geology (Ed. C.M. Scarfe), Mineralogical Association of Canada Short Course, Chapter 10, 279-304.

Herzberg, C.T. and O'Hara, M.J. (1985). Origin of mantle peridotite and komatiite by partial melting. Geophysical Research Letters 12, 541-544.

Fleet, M.E., Herzberg, C.T., Henderson, G.S., Crozier, E.D., Osborne, M.D., and Scarfe, C.M. (1984). Coordination of Fe, Ga and Ge in high pressure glasses by Mossbauer, Raman and X-ray absorption spectroscopy, and geological implications. Geochimica et Cosmochimica Acta 48, 1455-1466.

Herzberg, C.T. (1984). Chemical stratification in the silicate Earth. Earth and Planetary Science Letters 67, 249-260.

Herzberg, C.T., Fyfe, W.S. and Carr, M.J. (1983). Density constraints on the formation of the continental Moho and crust. Contributions to Mineralogy and Petrology 84, 1-5.

Herzberg, C.T. (1983). The reaction forsterite + cordierite = aluminous orthopyroxene + spinel in the system $Mg0$-Al_20_3-$Si0_2$. Contributions to Mineralogy and Petrology 84, 84-90.

Herzberg, C.T. and Forsythe, R.D. (1983). Destalibilization of a 650 kilometer chemical boundary layer and its bearing on the evolution of the continental crust. Physics of the Earth and Planetary Interiors 32, 352-360.

Herzberg, C.T. (1983). Solidus and liquidus temperatures and mineralogies for anhydrous garnet-lherzolite to 15 GPa. Physics of the Earth and Planetary Interiors 32, 193-202.

Herzberg, C.T., Baker, M.B. and Wendlandt, R.F. (1982). Olivine flotation and settling experiments on the join Mg_2Si0_4-Fe_2Si0_4. Contributions to Mineralogy and Petrology 80, 319-323.

Herzberg, C.T. and Baker, M.B. (1980). The cordierite-to spinel-cataclasite transition: Structure of the lunar crust. In The Lunar Highlands Crust, (Editors R.B. Merrill & J.J. Papike) Pergamon Press, Geochimica et Cosmochimica Acta, Suppl., 12, 113-132.

Baker, M.B. and Herzberg, C.T. (1980). Spinel cataclasites in 15445 and 72435: Petrology and criteria for equilibrium. Proceedings of the Lunar and Planetary Science Conference 11th, 535-553.

Simonds, C.H., Herzberg, C.T., and Papike, J.J. (1980). The Lunar highlands crust. Transactions of the American Geophysical Union 61, 473-475.

Herzberg, C.T. (1979). A reply to "Comments on 'The bearing of phase equilibria in simple and complex systems on the origin and evolution of some well-documented garnet-websterites' by F. Conquere". Contributions to Mineralogy and Petrology 70, 223-228.

Herzberg, C.T. (1979). The solubility of olivine in basaltic liquids: An ionic model. Geochimica et Cosmochimica Acta 43, 1241-1251.

Fleet, M.E., Herzberg, C.T., Bancroft, G.M., and Aldridge, L.P. (1978). Omphacite studies: Part I. The P2/n to C2/c transformation. American Mineralogist 63, 1100-1106.

Aldridge, L.P., Bancroft, G.M., Fleet, M.E., Herzberg, C.T. (1978). Omphacite studies: Part II. Mossbauer spectra of C2/c and P2/n omphacites. American Mineralogist 63, 1107-1115.

Herzberg, C.T., (1978). Pyroxene geothermometry and geobarometry: Experimental and thermodynamic evaluation of some subsolidus phase relations involving pyroxenes in the system CaO-$Mg0$-Al_20_3-$Si0_2$. Geochimica et Cosmochimica Acta 42, 945-957.

Herzberg, C.T., Riccio, L., Chiesa, S., Fornoni, A., Gatto, C.O., Gregnanin, A., Piccirillo, E.M., and Scolari, A. (1977). Petrogenetic evolution of a spinel-garnet-lherzolite in the Austridic crystalline basement from Val Clapa (Alto Adige, northeastern Italy). Memorie degli Instituti di Mineralogia e Geologia dell' Universita di Padova, vol. XXX, 1-28.

Fleet, M.E., MacRae, N.D., and Herzberg, C.T. (1977). Partition of nickel between olivine and sulfide: A test for immiscible sulfide liquids. Contributions to Mineralogy and Petrology 65, 191-197.

Herzberg, C.T. and Chapman, N.A. (1976). Clinopyroxene geothermometry of spinel-lherzolites. American Mineralogist 61, 626-637.

3. Papers without peer review (i.e., Editor only)

Herzberg, C.T. (1981) Phase relations involving forsterite, aluminous orthopyroxene, spinel, and cordierite in the system $Mg0$-Al_20_3-$Si0_2$. Progress in Experimental Petrology, Natural Environment Research Council Publications D.5, p. 197-201.

Herzberg, C.T., Fleet, M.E., Bancroft, G.M., and Aldridge, L.P. (1978) Experimental determination of the P2/n to C2/c transformation in omphacite. Progress in Experimental Petrology, Natural Environment Research Council Publications D.4, 140-142.

Herzberg, C.T. and Biggar, G.M. (1978) Subsolidus phase relations in the system $CaMgSi_20_6$-$CaAl_2Si0_6$-$Ca_2Si_20_6$. Progress in Experimental Petrology, Natural Environment Research Council Publications D.4, 138-140.

Herzberg, C.T. (1976) High alumina pyroxenites. Progress in Experimental Petrology, Natural Environment Research Council Publications D.3, 246-247.

Herzberg, C.T. (1976) Influence of normative albite to anorthite ratio on mineral parageneses in peridotites. Progress in Experimental Petrology, Natural Environment Research Council Publications D.3, 249-251.

Herzberg, C.T. (1976) Effect of coexisting phases on alumina solubility in pyroxenes. Progress in Experimental Petrology, Natural Environment Research Council Publications D.3, 248-249.

Herzberg, C.T. (1976) Alumina solubility in pyroxenes from garnet-spinel pyroxenites and anorthite-spinel pyroxenites. Progress in Experimental Petrology, Natural Environment Research Council Publications D.3, 243-245.

Herzberg, C.T. (1976) Alumina solubility in pyroxenes from spinel-lherzolites. Progress in Experimental Petrology, Natural Environment Research Council Publications D.3, 241-242.

Herzberg, C.T. (1976) X-ray method for determination of clinopyroxene composition in the system Ca0-Mg0-Al_20_3-$Si0_2$. Progress in Experimental Petrology, Natural Environment Research Council Publications D.3, 239-241.

Herzberg, C.T. (1976) The stability of pyrope-rich garnet within the spinel-lherzolite facies. Progress in Experimental Petrology, Natural Environment Research Council Publication D.3, 235-237.

Herzberg, C.T. (1976) The plagioclase-lherzolite to spinel-lherzolite facies boundary; its bearing on corona structure formation and tectonic history in the Norwegian caledonides. Progress in Experimental Petrology, Natural Environment Research Council Publications, D.3, 233-235.

Herzberg, C.T. and O'Hara, M.J. (1972) Temperature and pressure calibration and reproducibility of pressure in solid media equipment. Progress in Experimental Petrology, Natural Environment Research Council Publication D.2, 97-98.

Herzberg, C.T. (1972) Stability fields of plagioclase and spinel-lherzolite. Progress in Experimental Petrology, Natural Environment Research Council Publications D.2, London, England, 145-148.

4. Abstracts, Scientific Conferences

Herzberg, C. (2015). An Archean ferropicrite conundrum. Spring AGU, Montreal. Invited Talk.

Herzberg, C., Gavrilenko, M. and Vidito, C. (2015). Provenance of olivine in volcanic rocks. Goldschmidt Conference, Prague. Invited Talk.

Herzberg, C. (2013). Petrological evidence for deep lower mantle melting. Goldschmidt Conference, Florence, Invited Keynote Talk.

Gavrilenko, M., Herzberg, C.T., Portnyagin, M. and Ozerov, A. (2012). Identification of source lithology at south segment of Kamchatka subduction zone. AGU Fall Meeting.

Gazel, E., Herzberg, C.T., Vidito, C.A. (2012). Recycled crust and the secular cooling of mantle plumes. AGU Fall Meeting.

Wang, X., Liu, W., Herzberg, C.T. Li. B. (2012). Ultrasonic measurements of the elastic wave velocities of peridotite KLB-1 at mantle P and T. AGU Fall Meeting.

Nikulin, A., Levin, V., Carr, M., Herzberg, C. and West, M. (2011). Two melt generation sources sustaining volcanism of the Klyuchevskoy Group. AGU Fall Meeting.

Vidito, C., Herzberg, C. and Geist, D. (2011). Galapagos plume source lithology: implications from olivine phenocryst compositions. AGU Chapman Conference.

Herzberg, C. (2011). Formation of Cratonic Mantle & Continental Crust: An Integrated Petrological and Thermal Model. International Conference on Craton Formation and Destruction, Beijing, China.

Rooney, T.O., Herzberg, C.T. and Bastow, I.D. (2011) the East African Mantle: Warm but not hot. AGU Fall Meeting.

Gazel, E., Herzberg, C. and Vidito, C.A. (2011) The effect of recycled oceanic crust in the thermal evolution of the Galapagos plume. AGU Fall Meeting.

Gazel, E., Herzberg, C. and Asimow, P. (2011) Melting conditions with PRIMELT: examples and future work. Goldschmidt Conference.

Gazel, E., and Herzberg, C.T. (2009) Life Cycle of Mantle Plumes: A perspective from the Galapagos Plume. AGU Fall Meeting.

Gazel, E., and Herzberg, C.T. (2009) Life Cycle of Mantle Plumes: A perspective from the Galapagos Plume. Workshop on Circum-Caribbean and North Andean tectonomagmatic evolution: impacts on paleoclimate and resource formation. Cardiff University, Wales, September 2-4.

Rooney, T.O., Herzberg, C., and Bastow, I. (2008) Heated debate: evidence for two thermal upwellings in east Africa. AGU Fall Meeting.

Block, K.A., Lehnert, K.A. Johansson, A.K., Herzberg, C.T., Stern, R.J., Bloomer, S., Gerard-Little, P. Paul, M., Sou, N. (2007) Fostering education and research goals through partnerships between academic programs and geoinformatics projects. AGU Fall Meeting.

Lindsay, F.N., Gazel, E., Herzberg, C.T., Carr, M.J., Feigenson, M.D. (2006) Xenoliths of Cerro Mercedes, Costa Rica: a geochemical record of arc history? AGU Fall Meeting.

Gazel, E., Herzberg, C.T., Carr, M.J., Denyer, P. (2006) Geochemical signatures of the oceanic complexes in southern Central America. AGU Fall Meeting.

Herzberg, C. (2006) Distribution and size of pyroxenite bodies in the mantle. AGU Fall Meeting.

Arndt, N, Nolet, G., Herzberg, C. (2005) Decoupled upwelling between the lower and upper mantle; petrologic and seismic interpretation of mantle plumes. Abstract, European Geophysical Union.

Herzberg, C. (2004) How many hotspots are on present-day Earth, and are all plumes hot? AGU Fall Meeting, 345.

Rodgers, R.E., Polat, A., Delaney, J. S. Herzberg, C. T., Kusky, T. Li, J. (2004). Archean Geodynamics and Mantle Geochemistry: Evidence From the Mantle Section of the Dongwanzi Ophiolite 2.505Ga. AGU-CGS Joint Assembly, Montreal (Canada).

Herzberg, C. (2003) A petrological view of early Earth geodynamics. EGS-AGU-EUG Joint Assembly (Nice).

Herzberg, C. (2003) Partial crystallization of MORB in crust and mantle. EGS-AGU-EUG Joint Assembly (Nice).
Herzberg, C., Delaney, J.S., and D. Sahagian (1999) Ancient volcanic contributions to the atmosphere and hydrosphere: Evidence from the Belingwe Komatiites. Trans. Amer. Geophys. Union 80, S371.
Herzberg, C. (1997) Formation of cratonic mantle as residues and cumulates. Trans. Amer. Geophys. Union 78, F746.
Herzberg, C. and J. Zhang (1996) Melting experiments on synthetic komatiites at 5 and 10 GPa. Trans. Amer. Geophys. Union 77, F849.
Herzberg, C.T. and Hewins, R.H. (1996). Volatility, chondrules, and the composition of the earth. Lunar and Planetary Science, XXVII, 531-532.
Herzberg, C. (1995) Komatiite magmatism in the Archean mantle. Abstracts of the International Union of Geodesy and Geophysics, XXI General Assembly, Boulder Colorado, A 373.
Herzberg, C. and J. Zhang (1995) Melting experiments on peridotite to 22.5 GPa: phase chemistry. Trans. Amer. Geophys. Union 76, S 297.
Herzberg, C. and J. Zhang (1994) The Earth as a giant chondrule? Trans. Amer. Geophys. Union 75, 60.
Zhang, J. and C. Herzberg (1993) Melting experiments on peridotite KLB-1 to 22 GPa. Trans. Amer. Geophys. Union 74, 345.
Herzberg, C. (1993) Magmatism in plumes and hot spots, Trans. Amer. Geophys. Union 74, 81.
Herzberg, C. (1993) Phase equilibria of komatiites to 100 kilobars, Geological Association of Canada/Mineralogical Association of Canada, Annual Meeting, A43.
Herzberg, C.T. (1991) Experimental constraints on the depth and degree of melting of komatiites. Trans. Amer. Geophys. Union 72, 317.
Zhang, Z., Herzberg, C.T., and Gasparik, T. (1991) Anomalous melting behavior of pyrope $Mg_3Al_2Si_3O_{12}$: Implications for the melting of silicate perovskite. Trans. Amer. Geophys. Union 72, 317.
McFarlane, E.A., Drake, M.J., and Herzberg, C.T. (1991) Magnesiowustite/melt and majorite/melt partitioning and the early thermal history of the earth. Lunar and Planetary Science XXII, 875-876.
Zhang, J., Herzberg, C.T., Gasparik, T., and Liebermann, R.C. (1991) Melting of coesite and stishovite at 10-14 GPa. Trans. Amer. Geophys. Union 72, 436.
Herzberg, C.T. (1991) Origin of SNC meteorites in Martian mantle plumes: evidence from high pressure melting experiments. Trans. Amer. Geophys. Union 72,281.
Herzberg, C.T. (1991) Phase equilibria and trace element partitioning in a magma ocean to 260 kilobars. Workshop on the Physics and Chemistry of Magma Oceans from 1 bar to 4 Mbar, Sponsored by the Lunar and Planetary Institute, Burlingame, California.
Herzberg, C.T. (1990) Origin of mantle peridotite from melting experiments at high pressures: notes from a defector. Trans. Amer. Geophys. Union 71, 527 (Invited Paper).
McFarlane, E.A., Drake, M.J., and Herzberg, C.T. (1990) Olivine, beta spinel and The V.M. Goldschmidt Conference, Geochemical Society, 45.

Herzberg, C.T. and Gasparik, T. (1989) Melting experiments on chondrite at high pressures: stability of anhydrous phase B. Trans. Amer. Geophys. Union 70, 484 (Invited Paper).

Herzberg, C.T. and Feigenson, M.D. (1988) Experimental constraints on the formation of the Earth's upper and lower mantle. Conference on the Origin of the Earth, Berkeley, Lunar and Planetary Institute Contribution 681, 30 (Invited Paper).

Feigenson, M.D., Herzberg, C.T. and Ohtani, E. (1988) Majorite fractionation in an early differentiating Earth: evidence from the rare earth elements. Trans. Amer. Geophys. Union 69, 494.

Herzberg, C.T., Feigenson, M.D., and Ohtani, E. (1988) Majorite fractionation in an early differentiating Earth: evidence from the major elements. Trans. Amer. Geophys. Union 69, 493-494.

Herzberg, C.T. (1987) Melting experiments on a lherzolite analogue in the system Ca0-Mg0-Al_20_3-$Si0_2$ to 13 GPa. Transactions American Geophysical Union 68, 451.

Herzberg, C.T. (1987) Magma genesis and transport in the asthenosphere from the Archean to the present: constraints from the physical and chemical properties of magmas at ultrahigh pressures. International Union of Geodesy and Geophysics, XIX General Assembly, 197 (Invited Paper).

Herzberg, C.T. (1987) Melting relations of mantle minerals and rocks to 25 GPa: a review and critical evaluation of experimental data. International Union of Geodesy and Geophysics, XIX, General Assembly, 1112 (Invited Paper).

Herzberg, C.T. (1987) Melting experiments on a lherzolite analogue in the system Ca0-Mg0-Al_20_3-$Si0_2$ to 13 GPa. Transactions American Geophysical Union 68, 451.

Herzberg, C.T. (1987) Magma genesis and transport in the asthenosphere from the Archean to the present: constraints from the physical and chemical properties of magmas at ultrahigh pressures. International Union of Geodesy and Geophysics, XIX General Assembly, 197 (Invited Paper).

Herzberg, C.T. (1987) Melting relations of mantle minerals and rocks to 25 GPa: a review and critical evaluation of experimental data. International Union of Geodesy and Geophysics, XIX, General Assembly, 1112 (Invited Paper).

Herzberg, C.T., Hasebe, K., and Sawamoto, H. (1986) Origin of high Mg-komatiites: constraints from melting experiments to 8 GPa. Transactions American Geophysical Union 67, 408.

Walker, D. and Herzberg, C.T. (1985) Implications of possible liquidus-solidus convergence in mantle peridotite at high pressure. Transactions American Geophysical Union 66, 403.

Herzberg, C.T. (1985) Does olivine float in magmas at high pressure? Transactions American Geophysical Union 66, 404.

Herzberg, C.T. (1984) Compositional controls on the compressibility and thermal expansivity of magma. U. S. - Japan Seminar on partial melting phenomena in the earth and planetary evolution. University of Oregon (Invited Paper; H. Waff, Ed.).

Henderson, G., Fleet, M.E., Herzberg, C.T., Crozier, D., Osborne, M., and Scarfe, C.M. (1983) Coordination of Fe^{3+}, Ge^{4+} and Ga^{3+} in high pressure glasses. Transactions American Geophysical Union 64, 869.

Herzberg, C.T. (1983) Depths to komatiite source regions in the early Earth. Transactions American Geophysical Union 64, 902.

Herzberg, C.T. (1982) Mechanisms of heat and mass transfer in a differentiating Earth. Extended Abstracts, Lunar and Planetary Science XIII, Lunar and Planetary Institute, Houston, Texas, 323-324.

Herzberg, C.T. (1981) Density constraints on models of the structure and differentiation of the terrestrial planets. Extended Abstracts, Lunar and Planetary Science XII, Lunary and Planetary Institute, Houston, Texas, 439-441.

Herzberg, C.T. (1981) The bearing of planet size on internal structure: tectonic implications for Mars. Extended Abstracts, Third International Colloquium on Mars, 108-110.

Maloney, P. and Herzberg, C.T. (1980) Formation of the Cl carbonaceous chondrite minerals by hydrothermal alteration of interstellar dust grains. Extended Abstracts, Lunar and Planetary Science XI, Lunar and Planetary Institute, Houston, p. 663-665.

Baker, M.B. and Herzberg, C.T. (1980) Spinel cataclasites in 15445 and 72435: Petrography, mineral chemistry, and criteria for equilibrium. Extended Abstracts, Lunar and Planetary Science XI, Lunar and Planetary Institute, Houston, Texas, p. 52-54.

Herzberg, C.T. (1979) Identification of pristine lunar highland rocks: Criteria based on mineral chemistry and stability. Extended Abstracts, Lunar and Planetary Science X, Lunar and Planetary Institute, Houston, Texas, 537-539.

Herzberg, C.T. (1979) Solubility of olivine in lunar and eucritic basalts: An ionic model. Extended Abstracts, Lunar and Planetary Science X, Lunar and Planetary Institute, Houston, Texas, 540-542.

Herzberg, C.T. and Baker, M.B. (1979) The cordierite-to spinel-cataclasite transition in the moon, and its bearing on the structure of the crust and mantle. Extended Abstracts, Conference on the Lunar Highlands Crust, Lunar and Planetary Institute, Houston, Texas, 63-65.

Herzberg, C.T. and Fyfe, W.S. (1979) Physical-chemical constraints on models of planetary crust formation. Extended Abstracts, Conference on the Lunar Highlands Crust, Lunar and Planetary Institute, Houston, Texas, 66-68.

Herzberg, C.T. and Wood, J.A. (1978) Spinel cataclasites as samples of the lower crust of the moon. Extended Abstracts, Lunar and Planetary Science IX, Lunar and Planetary Science Institute, Houston, Texas, 500-502.

Fleet, M.E. and Herzberg, C.T. (1978) The P2/n - C2/c transformation in omphacite. 11th International Mineralogical Association General Meeting 2, 47.

Herzberg, C.T. and Chapman, N.A. (1975) Clinopyroxene geothermometry of spinel-lherzolites. In extended Abstracts, International Conference on Geothermometry and Geobarometry. Penn. State University.

GRANTS

Herzberg, C. Petrology and Mineral Chemistry of Crust & Mantle fragments in an Archean Ophiolite from the North China Craton (01/01/03-12/31/04) NSF EAR-0228592 $ 74,562.

Herzberg, C. Melting Experiments at Very High Pressures (5/1/94 -4/30/98)

NSF EAR 94-06976 $ 165,824.

Herzberg, C. Melting Experiments at Very High Pressures (5/1/92 - 4/30/94)

NSF EAR 91-17184 $ 115,000.

Herzberg, C. Fusion Curve Experiments on Mantle Minerals to 20 GPa. (5/1/90 - 4/30/92)

NSF EAR 89-16836 $ 40,000.

Herzberg, C. Experiments on the Earth's Mantle at Ultrahigh Pressures (7/1/87 - 6/30/88)

The Research Council Rutgers University $2,500.

Herzberg, C. Liquidus Phase Equilibria in Peridotite Systems at Very High Pressures (10/1/85 - 9/31/87) NSF INT 8418484 $ 19,250.

Herzberg, C. Magma Density at High Pressures: its bearing on the Differentiation of the Terrestrial Planets (4/1/81 - 3/31/84) NASA NAGW – 177 $ 38,671.

Herzberg, C. High Temperature Furnace for Phase Equilibrium Studies (7/1/82 - 5/1/83)

The Research Council Rutgers University $1,800.

TEACHING

1. Undergraduate Courses

Geology 101: 1986 –2004 (every semester, excluding sabbaticals)
Mineralogy 301: 2004 – 2011 (every Fall semester, excluding sabbaticals)
Petrology 302: 1987-2011 (every Spring semester, excluding sabbaticals)

2. Graduate Courses

Igneous Petrology (511)
Spring 1984, 1985, 1991, 2000, 2007
Fall 1986, 1987, 2005
Structure & Formation of the Earth (506) (with Feigenson & Hewins)
Spring 1994. 1996, 1998
Fall 2001, 2003
Seminar in Volcanology (616) (1/3 with Levin & Carr)
Spring 2007
CAMP seminar (613) (1/3 with Kent)
Spring 2008

Structure & Formation of the Earth (506) (with Levin)
Fall 2008, 2010

3. Supervision of Independent Study Projects (Geology 460: 493, 494)
Michael Bond (metamorphic petrology, Dutchess County)
Tinagayle Osborn (metamorphic petrology, Palisades Sill)
Garrick Budrow (igneous petrology, Palisades Sill)

4. Supervision of Theses

Michael Colucci (M.S.; 1984; Ductile deformation mechanisms controlled by impurities in a shear zone)

Jianzhong Zhang (Ph.D.; 1992; Melting of mantle minerals at high pressures: Experimental study and thermodynamic evaluation; CUNY, Brooklyn College; experiments at Stony Brook, my supervision)

Terry Romagna (M.S.; petrology and geochemistry of komatiites, withdrawn)

Rebecca E. Rodgers (M.S.; 2004; Archean Geodynamics and Mantle Geochemistry: Evidence From the Mantle Section of the Dongwanzi Ophiolite 2.505Ga).
Chris Vidito (M.S. 2012; Ph.D. 2014)
Maxim Gavrilenko (Ph.D., 2016)

5. Graduate Thesis Committees:

1980 Dork Sahagian (M.S,; geophysics)
1981 Tibor Gasparik (Ph.D; experimental petrology; SUNY Stony Brook)
1982 Richard Schofield (Ph.D., igneous petrology)
1984 Kent Schuyler (M.S.; igneous petrology)
1984 Dan Szuwalski (M.S.; igneous petrolgoy)
1984 Theodoros Toskos (M.S.; structural geology)
1985 Theresa Harriott (M.S.; igneous petrology)
1987 Peter Milionis (M.S.; petrology-geochemistry)
1988 Patrick Radomsky (M.S.; petrology)
1990 Kejian Wei (M.S.; experimental petrology; University of Alberta, Canada)
1991 Harold Connolly (M.S.; experimental petrology)
1991 Christine Stack (M.S.; volcanology)
1991 April Clare (M.S.; volcanology)
1992 Kaushik Majumdar (Ph.D.; soil science)
1992 Jianzhong Zhang (Ph.D.; experimental petrology; CUNY)
1996 Harold Connolly (Ph.D; meteoritics)

1996 Qianli Xie (Ph.D.; geochemistry; University of Saskatewan, Canada)
1997 Lina Patino (Ph.D; volcanology)
1998 Bosmat Cohen (Ph.D; meteoritics)
2000 Fara Lindsay (MS; volcanology)
2003 Ernest Fox (Ph.D; meteoritics)
2009 Estban Gazel (Ph.D, petrology-geochemistry)
2009 Fara Lindsay (Ph.D. petrology-geochemistry)
2009 Chris Vidito (MS. Petrology-geochemistry)
2011 Maxim Gavrilenko (Ph.D., petrology-geochemistry)

6. Postdoctoral Support

1992 - 1994: Dr. Jianzhong Zhang

Melting experiments at high pressures
Center for High Pressure Research, SUNY Stony Brook
1/3 support from C. Herzberg's NSF grant
2/3 support from SUNY Stony Brook NSF grant

1994 - 1998: Dr. Jianzhong Zhang

50 - 50 share basis with SUNY Stony Brook

OTHER FACULTY SERVICES

1. Departmental Committee Service

a) Undergraduate advising (1981 - present)
b) Faculty Search Committee 1981 (appointment of Feigenson)
c) Departmental representative of x-ray safety and monitoring (1982 - 1995)
d) Graduate Program Committee (1987 - 1989; 1991)
e) Faculty Supplement Salary Adjustment Committee (1987; 1990; 1991)
f) Graduate admissions committee (2009-2012)
g) Search committee, Early Earth – Planetary hire (2010)
h) Search committee, Planetary hire (2014)

2. University Committee Service

Member, Advisory Committee on Appointments and Promotions of Non-tenured Faculty (Math & Natural Sciences) (1990)

3. Organizing Committee for Northeastern Section of the Geological Society of America Spring Meeting (1989)

PROFESSIONAL ACTIVITY

1. Professional Societies: American Geophysical Union

2. Invited Lectures:

1976 University of Western Ontario, London, Canada
1978 Grant Institute of Geology, Edinburgh University
1978 Lamont-Doherty Geological Observatory, Columbia
1978 Harvard University
1978 Massachusetts Institute of Technology
1978 University of Toronto
1979 Lunar and Planetary Institute, Houston, Texas
1979 Dalhousie University, Halifax, Canada
1980 Rutgers University
1981 The Pennsylvania State University
1981 Brooklyn College, City University of New York
1982 University of Alberta
1983 Middlebury College, Vermont
1983 Rutgers University
1984 Lamont-Doherty Geological Observatory, Columbia
1984 University of Oregon
1984 The University of North Carolina, Chapel Hill
1984 Department of Terrestrial Magmatism
Carnegie Institute of Washington
1984 SUNY at Stony Brook
1985 Tokyo University
1985 Nagoya University
1986 Okayama University
1987 University of Minnesota
1987 Franklin and Marshall College
1987 State University of New York at Albany
1987 Rutgers University
1987 State University of New York at Stony Brook
1988 Department of Terrestrial Magnetism
Carnegie Institute of Washington
1989 California Institute of Technology
1989 Brown University
1990 Edinburgh University

1991 Department of Terrestrial Magnetism
Carnegie Institution of Washington
1991 Rutgers University
1993 State University of New York at Stony Brook
1994 Geophysical Laboratory, Carnegie Institution of Washington
1997 Geophysical Laboratory, Carnegie Institution of Washington
1999 State University of New York at Stony Brook
2001 Geophysical Laboratory, Carnegie Institution of Washington, **Keynote Talk**
2001 Gordon Research Conference, **Keynote Talk**.
2001 University of Maryland
2001 Laurentian University
2007 Lamont Doherty Earth Observatory
2007 IODP workshop, Coleraine, Northern Ireland
2008 University of Massachusetts, Amherst
2010 L'Université Joseph Fourier, Grenoble, France
2010 Rutgers University
2010 Boston University
2011 American Museum of Natural History, New York
2011 International Conference on Craton Formation and Destruction (ICCFD) in Beijing, China (25-29 April), **Keynote Talk**
2012 Brown University
2013 Goldschmidt Conference, Florence, **Keynote Talk**
2013 Virginia Tech
2013 Princeton University
2013 McGill University

3. Other Scholarly and Professional Activities

Member of the Program Committee for organizing the 11th Lunar and Planetary Science Conference, Houston (January, 1980).

Member of the Program Committee for organizing the 12th Lunar and Planetary Science Conference, Houston (January, 1981).

Associate Editor, "The Lunar Highlands Crust" (1980) (Editors R.B. Merrill & J.J. Papike) Pergamon Press, Geochimica Cosmochimica Acta, Suppl., 12, Journal of the Geochemical Society and the Meteoritical Society, 505 pp.

Chairman of "Planetary Physics" Session of the 12th Lunary and Planetary Science Conference, Houston (1981).

Joint supervision (with J.A. Wood) of two undergraduate theses at Harvard University by M. Baker and P. Maloney (1978-1979).

Chairman of "Mantle Petrology" Session of the fall conference of the American Geophysical Union (1983).

Chairman of "Experimental Petrology I: Liquids and Vapors" session of the Spring Meeting of the American Geophysical Union (1987).

Chairman of "Petrology and Geochemistry of Mantle Systems" session of the Spring Meeting of the American Geophysical Union (1991).

Adjunct Professor, Department of Earth & Planetary Sciences, State University of New York, Stony Brook (1993-1999). This is a non-salaried position.

Chairman of "Magma generation and evolution" session of Mafic Magmatism through Time Conference, St. Malo, France (May 9-13, 1994).

Chairman of "Physical and Chemical Evolution of the Earth", International Union of Geodesy and Geophysics, Boulder, Colorado (July 5, 1995).

Chairman of "Experimental Petrology", American Geophysical Union, Spring Meeting, Baltimore (June, 1995).

Chairman and Organizer of "Origin of Cratonic Mantle", American Geophysical Union, Fall Meeting, San Francisco (December, 1997)

2007. Mentoring undergraduate students Naya Sou & Stephanie Bloomer in the construction of a geochemical metadatabase for the Central Atlantic Igneous Province. Arrangements were made for Naya & Stephanie to be summer interns at Lamont Doherty Earth Observatory, a salaried position paid for by a grant administered by Kerstin Lehnert. The results of their work can now be accessed and downloaded from http://www.petdb.org/. PetDB is a member of EarthChem, the consortia for integrated data management in Solid Earth Geochemistry. It archives and serves analytical data for whole rocks, glasses, minerals, melt inclusions, with emphasis on basalts and abyssal peridotites. PetDB contains major, trace-element, and isotope ratios for samples from mid-ocean ridge basalts, back-arc basins, young near-ridge seamounts, old oceanic crust, and now CAMP. The CAMP initiative was described in an abstract presented at the Fall session of AGU: Block, K.A., Lehnert, K.A. Johansson, A.K., Herzberg, C.T., Stern, R.J., Bloomer, S., Gerard-Little, P. Paul, M., Sou, **N.** (2007) Fostering education and research goals through partnerships between academic programs and geoinformatics projects. AGU Fall Meeting.

The Kliegel Lectures, Caltech (November, 2007):

1. Mantle Petrology and Mass Extinctions: What makes a Killer LIP?
2. Mantle Source Petrology of Hawaii
3. Mantle Source Petrology of Oceanic Islands and Large Igneous Provinces

Software Development (PRIMELT) with Paul Asimow, Caltech (2007, 2008, 2015).

This software computes primary magma composition, melt fraction, olivine liquidus temperature, and mantle potential temperature. The input is a primitive lava composition that has crystallized only olivine. It has been used to constrain the existence of and thermal properties of ambient mantle and mantle plumes.
PRIMELT1.XLS First published in Herzberg et al. (2007)
PRIMELT2.XLS Version 2 published in Herzberg and Asimow (2008).
PRIMELT3.XLSM Version 3 published in Herzberg and Asimow (2015).

Visiting scientist, L'Université Joseph Fourier, Grenoble, France (July, 2010).

Convener, Goldschmidt Conference, Prague (2011) "*Merging Experiments, Models, and Geochemical Observations of Mantle Melting*".

The Wuhan Lectures, Wuhan University, China (May, 2011):

1. PRIMELT2 software for primary magma calculation
2. Formation of Cratonic Mantle and Continental Crust
3. Identification of Pyroxenite Melting in the Mantle: Magmatism in the North China Craton