

REFERENCES

- Allred, A.L. (1961) Electronegativity values from thermochemical data. *Journal of Inorganic and Nuclear Chemistry*, 17, 215-221.
- Anderson, O. (1915) The system anorthite-forsterite-silica. *American Journal of Science*, 39, 407-454.
- Armstrong, J.T. (1988) Quantitative analysis of silicate and oxide materials: Comparison of Monte Carlo, ZAF, and $\phi(pz)$ procedures. In D.E. Newberry, Ed. *Microbeam Analysis*, p. 239-246. San Francisco Press.
- Bagnall, K.W. (1957) Chemistry of the rare radioelements: polonium-actinium. 177 p. Academic Press Inc., New York.
- Beattie, P. (1994) Systematics and energetics of trace-element partitioning between olivine and silicate melts: Implications for the nature of mineral/melt partitioning. *Chemical Geology*, 117, 57-71.
- Beattie, P.D., Drake, M., Jones, J., Leeman, W., Longhi, J., McKay, G., Nielsen, R., Palme, H., Shaw, D., Takahashi, E., and Watson, B. (1993) Terminology for trace-element partitioning. *Geochimica et Cosmochimica Acta*, 57, 1605-1606.
- Beaty, D.W., and Albee, A.L. (1980) Silica solid solution and zoning in natural plagioclase. *American Mineralogist*, 65, 63-74.
- Beckett, J.R. (2002) Role of basicity and tetrahedral speciation in controlling the thermodynamic properties of silicate liquids, Part I: The system CaO-MgO-Al₂O₃-SiO₂. *Geochimica et Cosmochimica Acta*, 66, 93-107.
- Beckett, J.R., and Stolper, E. (2000) The partitioning of Na between melilite and liquid; Part I, The role of crystal chemistry and liquid composition. *Geochimica et Cosmochimica Acta*, 64, 2509-2517.
- Bedard, J.H. (2005) Partitioning coefficients between olivine and silicate melts. *Lithos*, 83, 394-419.
- (2006) Trace element partitioning in plagioclase feldspar. *Geochimica et Cosmochimica Acta*, 70, 3717-3742.
- Berman, R.G. (1983) A thermodynamic model for multicomponent melts, with application to the system CaO-MgO-Al₂O₃-SiO₂. Ph.D. Thesis, University of British Columbia.
- Berman, R.G., and Brown, T.H. (1984) A thermodynamic model for multicomponent melts, with application to the system CaO-Al₂O₃-SiO₂. *Geochimica et Cosmochimica Acta*, 48, 661-678.
- (1987) Development of models for multicomponent melts: Analysis of synthetic systems. In I.S.E. Carmichael, and H.P. Eugster, Eds. *Thermodynamic modeling of geological materials: minerals, fluids, and melts*, 17, p. 405-442. Mineralogical Society of America.
- Bindeman, I.N., and Davis, A.M. (2000) Trace element partitioning between plagioclase and melt: Investigation of dopant influence on partition behavior. *Geochimica et Cosmochimica Acta*, 64, 2863-2878.
- Bindeman, I.N., Davis, A.M., and Drake, M.J. (1998) Ion microprobe study of plagioclase-basalt partition experiments at natural concentration levels of trace elements. *Geochimica et Cosmochimica Acta*, 62, 1175-1193.

- Bindeman, I.N., Davis, A.M., and Wickham, S.M. (1999) 400 my of basic magmatism in a single lithospheric block during cratonization: Ion microprobe study of plagioclase megacrysts in mafic rocks from Transbaikalia, Russia. *Journal of Petrology*, 40, 807-830.
- Blundy, J., and Dalton, J. (2000) Experimental comparison of trace element partitioning between clinopyroxene and melt in carbonate and silicate systems, and implications for mantle metasomatism. *Contributions to Mineralogy and Petrology*, 139, 356-371.
- Blundy, J., and Wood, B. (1994) Prediction of crystal-melt partition coefficients from elastic moduli. *Nature*, 372, 452-454.
- (2003a) Mineral-melt partitioning of uranium, thorium and their daughters. In B. Bourdon, G.M. Henderson, C.C. Lundstrom, and S.P. Turner, Eds. *Uranium-series geochemistry*, 52, p. 59-123. Mineralogical Society of America.
- (2003b) Partitioning of trace elements between crystals and melts. *Earth and Planetary Science Letters*, 210, 383-397.
- Blundy, J.D., Falloon, T.J., Wood, B.J., and Dalton, J.A. (1995) Sodium partitioning between clinopyroxene and silicate melts. *Journal of Geophysical Research*, 100, 15,501-15,515.
- Blundy, J.D., and Shimizu, N. (1991) Trace element evidence for plagioclase recycling in calc-alkaline magmas. *Earth and Planetary Science Letters*, 102, 178-197.
- Blundy, J.D., and Wood, B.J. (1991) Crystal-chemical controls on the partitioning of Sr and Ba between plagioclase feldspar, silicate melts, and hydrothermal solutions. *Geochimica et Cosmochimica Acta* 55, 193-209.
- Blundy, J.D., Wood, B.J., and Davies, A. (1996) Thermodynamics of rare earth element partitioning between clinopyroxene and melt in the system CaO-MgO-Al₂O₃-SiO₂. *Geochimica et Cosmochimica Acta*, 60, 359-364.
- Bocanegra, R., and Hopke, P.K. (1988) Radon adsorption on activated carbon and the effect of some airborne contaminants. *The Science of the Total Environment*, 76, 193-202.
- Bouissieres, G. (1958) Radium. In P. Pascal, Ed. *Nouveau traite de chimie minerale*, IV, p. 931-955. Masson et Cie, Paris.
- Brenan, J.M., Shaw, H.F., Ryerson, F.J., and Phinney, D.L. (1995) Mineral-aqueous fluid partitioning of trace elements at 900°C and 2.0GPa: Constraints on the trace element chemistry of mantle and deep crustal fluids. *Geochimica et Cosmochimica Acta*, 59, 3331-3350.
- Brice, J.C. (1975) Some thermodynamic aspects of the growth of strained crystals. *Journal of Crystal Growth*, 28, 249-253.
- Bruno, E., and Facchinelli, A. (1974) Experimental studies on anorthite crystallization along the join CaAl₂Si₂O₈-SiO₂. *Bulletin de la Société Française de Minéralogie et de Cristallographie* 97, 422-432.
- (1975) Crystal-chemical interpretation of crystallographic anomalies in lunar plagioclases. *Bulletin de la Société Française de Minéralogie et de Cristallographie* 98, 113-117.
- Bryan, W.B. (1974) Fe-Mg relationships in sector-zoned submarine basalt plagioclase. *Earth and Planetary Science Letters*, 24, 157-165.

- Cherniak, D.J. (2002) Ba diffusion in feldspar. *Geochimica et Cosmochimica Acta*, 66, 1641-1650.
- Colson, R.O., and Gust, D. (1989) Effects of pressure on partitioning of trace elements between low-Ca pyroxene and melt. *American Mineralogist*, 74, 31-36.
- Condomines, M., Gauthier, P.-J., and Sigmarsdóttir, O. (2003) Timescales of magma chamber processes and dating of young volcanic rocks. In B. Bourdon, G.M. Henderson, C.C. Lundstrom, and S.P. Turner, Eds. *Uranium-Series Geochemistry*, 52, p. 125-174. Mineralogical Society of America.
- Condomines, M., Gauthier, P.J., Tanguy, J.C., Gertisser, R., Thouret, J.C., Berthommier, P., and Camus, G. (2005) ^{226}Ra or $^{226}\text{Ra}/\text{Ba}$ dating of Holocene volcanic rocks: application to Mt. Etna and Merapi volcanoes. *Earth and Planetary Science Letters*, 230, 289-300.
- Condomines, M., Tanguy, J.-C., and Michaud, V. (1995) Magma dynamics at Mt. Etna: constraints from U-Th-Ra-Pb radioactive disequilibria and Sr isotopes in historical lavas. *Earth and Planetary Science Letters*, 132, 25-41.
- Cooper, K.M., Goldstein, S.J., Sims, K.W.W., and Murrell, M.T. (2003) Uranium-series chronology of Gorda Ridge volcanism: new evidence from the 1996 eruption. *Earth and Planetary Science Letters*, 206, 459-475.
- Cooper, K.M., and Reid, M.R. (2003) Re-examination of crystal ages in recent Mount St. Helens lavas: Implications for magma reservoir processes. *Earth and Planetary Science Letters*, 213, 149-167.
- Cooper, K.M., Reid, M.R., Murrell, M.T., and Clague, D.A. (2001) Crystal and magma residence at Kilauea Volcano, Hawaii: ^{230}Th - ^{226}Ra dating of the 1955 east rift eruption. *Earth and Planetary Science Letters*, 184, 703-718.
- CRC. (1993-1994) CRC Handbook of Chemistry and Physics. CRC Press, Cleveland, OH.
- Davies, R.H., Dinsdale, A.T., Chart, T.G., Barry, T.I., and Rand, M.H. (1990) Application of MTDATA to the modeling of multicomponent equilibria. *High Temperature Science*, 26, 251-262.
- Davis, A.M., Hashimoto, A., and Parsad, N. (1999) Trace element fractionation during evaporation in reducing atmospheres. *Lunar and Planetary Science Conference*, XXX, Houston, TX.
- De Capitani, C., and Brown, T.H. (1987) The computation of chemical equilibrium in complex systems containing non-ideal solutions. *Geochimica et Cosmochimica Acta*, 51, 2639-2652.
- DeVries, R.C., and Osborn, E.F. (1957) Phase equilibria in high-alumina part of the system CaO-MgO-Al₂O₃-SiO₂. *Journal of the American Ceramic Society*, 40, 6-15.
- Drake, M.J. (1976) Plagioclase-melt equilibria. *Geochimica et Cosmochimica Acta*, 40, 457-465.
- Drake, M.J., and Weill, D.F. (1975) Partition of Sr, Ba, Ca, Y, Eu²⁺, Eu³⁺, and other REE between plagioclase feldspar and magmatic liquid: An experimental study. *Geochimica et Cosmochimica Acta*, 39, 689-712.
- Dufek, J., and Cooper, K.M. (2005) $^{226}\text{Ra}/^{230}\text{Th}$ excess generated in the lower crust: Implications for magma transport and storage time scales. *Geology*, 33, 833-836.

- Duffy, J.A. (1993) A review of optical basicity and its application to oxidic systems. *Geochimica et Cosmochimica Acta*, 57, 3961-3970.
- Eugster, O., Armstrong, J.T., and Wasserburg, G.J. (1985) Identification of isobaric interferences-a computer-program for ion microprobe mass-spectral data. *International Journal of Mass Spectrometry of Ion Proceedings*, 66, 291-312.
- Feineman, M.D., and DePaolo, D.J. (2003) Steady-state $^{226}\text{Ra}/^{230}\text{Th}$ disequilibrium in mantle minerals: Implications for melt transport rates in island arcs. *Earth and Planetary Science Letters*, 215, 339-355.
- Fiske, P.S., and Stebbins, J.F. (1994) The structural role of Mg in silicate liquids: A high-temperature ^{25}Mg , ^{22}Na , and ^{29}Si NMR study. *American Mineralogist*, 79, 848-861.
- Fujinawa, A., and Green, T.H. (1997) Experimental study of partitioning of Hf and Zr between amphibole, clinopyroxene, garnet, and silicate melts. *Journal of Mineralogy, Petrology and Economic Geology*, 92, 69-89.
- Gaetani, G. (2004) The influence of melt structure on trace element partitioning near the peridotite solidus. *Contributions to Mineralogy and Petrology*, 147, 511-527.
- Geake, J.E., Walker, G., Telfer, D.J., Mills, A.A., and Garlick, G.F.J. (1973) Luminescence of lunar, terrestrial, and synthesized plagioclase, caused by Mn^{2+} and Fe^{3+} . *Proceedings of the Fourth Lunar and Planetary Science Conference*, 3, p. 3181-3189, Houston, TX.
- George, A.M., and Stebbins, J.F. (1998) Structure and dynamics of magnesium in silicate melts: A high-temperature ^{25}Mg NMR study. *American Mineralogist*, 83, 1022-1029.
- Ghiorso, M.S., and Sack, R.O. (1995) Chemical mass transfer in magmatic processes IV. A revised and internally consistent thermodynamical model for the interpolation and extrapolation of liquid-solid equilibria in magmatic systems at elevated temperatures and pressures. *Contributions to Mineralogy and Petrology*, 119, 197-212.
- Gibb, F.G.F. (1974) Supercooling and the crystallization of plagioclase from a basaltic magma. *Mineralogical Magazine*, 39, 641-653.
- Giletti, B.J., and Casserly, J.E.D. (1994) Strontium diffusion kinetics in plagioclase feldspars. *Geochimica et Cosmochimica Acta*, 58, 3785-3793.
- Gotze, J. (1998) Investigation of lunar plagioclases by cathodoluminescence microscopy and spectroscopy. *GSA Abstracts with Programs*, p. A-60.
- Gotze, J., Krötschek, M.R., Habermann, D., and Wolf, D. (2000) High-resolution cathodoluminescence of feldspar minerals. In M. Pagel, V. Barbin, P. Blanc, and D. Ohnenstetter, Eds. *Cathodoluminescence in Geosciences*, p. 245-270. Springer-Verlag, Berlin, Heidelberg, New York, Tokyo.
- Halter, W.E., and Mysen, B.O. (2004) Melt speciation in the system $\text{Na}_2\text{O}-\text{SiO}_2$. *Chemical Geology*, 213, 115-123.
- Hashimoto, A. (1992) The effect of H_2O gas on volatilities of planet-forming major elements: I. Experimental determination of thermodynamic properties of Ca-, Al-, and Si-hydroxide gas molecules and its application to the solar nebula. *Geochimica et Cosmochimica Acta*, 56, 511-532.
- Hess, P.C. (1995) Thermodynamic mixing properties and the structure of silicate melts. In J.F. Stebbins, P.F. McMillan, and D.B. Dingwell, Eds. *Structure, Dynamics*

- and Properties of Silicate Melts, 32, p. 145-189. Mineralogical Society of America.
- Higuchi, H., and Nagasawa, H. (1969) Partition of trace elements between rock-forming minerals and the host volcanic rocks. *Earth and Planetary Science Letters*, 7, 281-287.
- Hill, E., Wood, B.J., and Blundy, J.D. (2000) The effect of Ca-Tschermaks component on trace element partitioning between clinopyroxene and silicate melt. *Lithos*, 53, 203-215.
- Hirschmann, M.M., and Ghiorso, M.S. (1994) Activities of nickel, cobalt, and manganese silicates in magmatic liquids and applications to olivine/liquid and to silicate/metal partitioning. *Geochimica et Cosmochimica Acta*, 58, 4109-4126.
- Hutcheon, I.D., Steele, I.M., Smith, J.V., and Clayton, R.N. (1978) Ion microprobe, electron microprobe and cathodoluminescence data for Allende inclusions with emphasis on plagioclase chemistry. *Proceedings of the Ninth Lunar and Planetary Science Conference*, 2, p. 1345-1368, Houston, TX.
- Ito, J. (1976) High temperature solvent growth of anorthite on the join $\text{CaAl}_2\text{Si}_2\text{O}_8$ - SiO_2 . *Contributions to Mineralogy and Petrology*, 59, 187-194.
- Johnson, M., Benziger, J., C., S., F., C., M., C., Darton, N., F., L., and Vogelaar, R.B. (1998) A ^{222}Rn source for low-background liquid scintillation detectors. *Nuclear Instruments and Methods in Physics Research Section A*, 414, 459-465.
- Kimata, M., Nishida, N., Shimizu, M., Saito, S., Matsui, T., and Arakawa, Y. (1995) Anorthite megacrysts from island arc basalts. *Mineralogical Magazine*, 59, 1-14.
- Kinzler, R.J., Grove, T.L., and Recca, S.I. (1990) An experimental study on the effect of temperature and melt composition on the partitioning of nickel between olivine and silicate melt. *Geochimica et Cosmochimica Acta*, 54, 1255-1265.
- Kirkpatrick, R.J. (1974) Kinetics of crystal growth in the system $\text{CaMgSi}_2\text{O}_6$ - $\text{CaAl}_2\text{SiO}_6$. *American Journal of Science*, 274, 215-242.
- Klein, L., and Uhlmann, D.R. (1974) Crystallization behavior of anorthite. *Journal of Geophysical Research*, 79, 4869-4874.
- Kohn, S.C., and Schofield, P.F. (1994) The importance of melt composition in controlling trace-element behavior: An experimental study of Mn and Zn partitioning between forsterite and silicate melts. *Chemical Geology*, 117, 73-87.
- Kremser, D.T. Advanced Topics in Probe for Windows. Probe for Windows (32 bit) v. 5.35.
- Kushiro, I., and Walter, M.J. (1998) Mg-Fe partitioning between olivine and mafic-ultramafic melts. *Geophysical Research Letters*, 25, 2337-2340.
- Lange, R.L., and Carmichael, I.S.E. (1990) Thermodynamic properties of silicate liquids with emphasis on density, thermal expansion and compressibility. In J. Nicholls, and J.K. Russell, Eds. *Modern Methods of Igneous Petrology: Understanding Magmatic Processes*, 24. Mineralogical Society of America.
- LaTourrette, T. (1993) Experimental determination of U and Th partitioning between clinopyroxene, garnet, olivine, and natural and synthetic silicate melt. Division of Geological and Planetary Sciences, p. 373. California Institute of Technology, Pasadena, CA.

- LaTourrette, T., and Wasserburg, G.J. (1998) Mg diffusion in anorthite: Implications for the formation of early solar system planetesimals. *Earth and Planetary Science Letters*, 158, 91-108.
- Libourel, G. (1999) Systematics of calcium partitioning between olivine and silicate melts: Implications for melt structure and calcium content of magmatic olivines. *Contributions to Mineralogy and Petrology*, 136, 63-80.
- Libourel, G., Geiger, C.A., Merwin, L., and Sebald, A. (1992) ^{29}Si and ^{27}Al MAS-NMR spectroscopy of glasses in the system $\text{CaSiO}_3\text{-MgSiO}_3\text{-Al}_2\text{O}_3$. *Chemical Geology*, 96, 387-397.
- Linnen, R.L., and Keppler, H. (2002) Melt composition control of Zr/Hf fractionation in magmatic processes. *Geochimica et Cosmochimica Acta*, 66, 3293-3301.
- Lofgren, G. (1974a) An experimental study of plagioclase crystal morphology: Isothermal crystallization. *American Journal of Science*, 274, 243-273.
- (1974b) Temperature induced zoning in synthetic plagioclase feldspar. In W.S. Mackenzie, and J. Zussmann, Eds. *The Feldspars*, p. 362-375. Manchester University Press, Manchester.
- Longhi, J., and Hays, J.F. (1979) Phase equilibria and solid solution along the join $\text{CaAl}_2\text{Si}_2\text{O}_8\text{-SiO}_2$. *American Journal of Science*, 279, 876-890.
- Longhi, J., Walker, D., and Hays, J. (1976) Fe and Mg in plagioclase. Seventh Lunar Science Conference, p. 1281-1300, Houston, TX.
- Mariano, A.N., Ito, J., and Ring, P.J. (1973) Cathodoluminescence of plagioclase feldspars. *GSA Abstracts with Programs*. 726.
- Mariano, A.N., and Ring, P.J. (1975) Europium-activated cathodoluminescence in minerals. *Geochimica et Cosmochimica Acta*, 39, 649-660.
- Marshall, D.J. (1988) *Cathodoluminescence of Geological Materials*. 146 p. Unwin Hyman, Boston.
- Merzbacher, C.I., Sherriff, B.L., Hartman, J.S., and White, W.B. (1990) A high-resolution ^{29}Si and ^{27}Al NMR study of alkaline-earth aluminosilicate glasses. *Journal of Non-Crystalline Solids*, 124, 194-206.
- Miller, S.A., Asimow, P.D., and Burnett, D.S. (2006) Determination of melt influence on divalent element partitioning between anorthite and CMAS melts. *Geochimica et Cosmochimica Acta*, 70, 4258-4274.
- Miller, S.A., Burnett, D.S., and Asimow, P.D. (2003) Experimental divalent element partitioning between anorthite and CAI melt. *Lunar and Planetary Science Conference XXXIV*, p. 1446, Houston, TX.
- Mills, K.C. (1993) The influence of structure on the physico-chemical properties of slags. *ISIJ International*, 33, 148-155.
- Momyer, F.F. (1960) The radiochemistry of the rare gases. 55 p. Subcommittee on Radiochemistry, National Academy of Sciences, National Research Council.
- Murakami, H., Kimata, M., Shimoda, S., Ito, E., and Sasaki, S. (1992) Solubility of $\text{CaMgSi}_3\text{O}_8$ and Si_4O_8 . *Journal of Mineralogy, Petrology and Economic Geology*, 87, 491-509.
- Mysen, B.O. (1997) Aluminosilicate melts: structure, composition, and temperature. *Contributions to Mineralogy and Petrology*, 127, 104-118.
- (1999) Structure and properties of magmatic liquids: From haplobasalt to haploandesite. *Geochimica et Cosmochimica Acta*, 63, 95-112.

- . (2004) Element partitioning between minerals and melt, melt composition, and melt structure. *Chemical Geology*, 213, 1-16.
- Mysen, B.O., and Dubinsky, E.V. (2004) Melt structural control on olivine/melt partitioning of Ca and Mn. *Geochimica et Cosmochimica Acta*, 68, 1617-1633.
- Mysen, B.O., and Virgo, D. (1980) Trace element partitioning and melt structure: An experimental study at 1 atm pressure. *Geochimica et Cosmochimica Acta*, 44, 1917-1930.
- Mysen, B.O., Virgo, D., and Seifert, F.A. (1982) The structure of silicate melts: Implications for chemical and physical properties of natural magma. *Reviews of Geophysics and Space Physics*, 20, 353-383.
- Nakayama, Y., Nagao, H., Mochida, I., and Kawabuchi, Y. (1994) Adsorption of radon on active carbon. *Carbon*, 32, 1544-1547.
- Nielsen, R.L., and Dungan, M.A. (1983) Low pressure mineral-melt equilibria in natural anhydrous mafic systems. *Contributions to Mineralogy and Petrology*, 84, 310-326.
- O'Neill, H.S.C., and Eggins, S.M. (2002) The effect of melt composition on trace element partitioning: An experimental investigation of the activity coefficients of FeO, NiO, CoO, MoO₂ and MoO₃ in silicate melts. *Chemical Geology*, 186, 151-181.
- Onuma, N., Higuchi, H., Wakita, H., and Nagasawa, H. (1968) Trace element partitioning between two pyroxenes and the host lava. *Earth and Planetary Science Letters*, 5, 47-51.
- Osborn, E.F. (1942) The system CaSiO₃-diopside-anorthite. *American Journal of Science*, 240, 751-788.
- Osborn, E.F., DeVries, R.C., Gee, K.H., and Kraner, H.M. (1954) Optimum composition of blast furnace slag as deduced from liquidus data for the quaternary system CaO-MgO-Al₂O₃-SiO₂. *Transactions of the American Institute of Mining and Metallurgical Engineers*, 200, 33-45.
- Osborn, E.F., and Tait, D.B. (1952) The system diopside-forsterite-anorthite. *American Journal of Science*, 250A, 413-433.
- Pack, A., and Palme, H. (2003) Partitioning of Ca and Al between forsterite and silicate melt in dynamic systems with implications for the origin of Ca, Al-rich forsterites in primitive meteorites. *Meteoritics and Planetary Science*, 38, 1263-1281.
- Parrington, J.R., Knox, H.D., Brennan, S.L., Baum, E.M., and Feiner, R. (1996) Nuclides and isotopes: chart of the nuclides. 64 p. General Electric Co. and KAPL, Inc.
- Pauling, L. (1960) The nature of the chemical bond and the structure of molecules and crystals : An introduction to modern structural chemistry. 644 p. Cornell University Press, Ithaca, NY.
- Peters, M.T., Shaffer, E.E., Burnett, D.S., and Kim, S.S. (1995) Magnesium and titanium partitioning between anorthite and Type B CAI liquid: Dependence on oxygen fugacity and liquid composition. *Geochimica et Cosmochimica Acta*, 59, 2785-2796.
- Presnall, D.C., Gudfinnsson, G.H., and Walter, M.J. (2002) Generation of mid-ocean ridge basalts at pressures from 1 to 7 GPa. *Geochimica et Cosmochimica Acta*, 66, 2073-2090.
- Prince, A.T. (1954) Liquidus relationships on 10% MgO plane of the system lime-magnesia-alumina-silica. *Journal of the American Ceramic Society*, 37, 402-408.

- Prowatke, S., and Klemme, S. (2005) Effect of melt composition on the partitioning of trace elements between titanite and silicate melt. *Geochimica et Cosmochimica Acta*, 69(695-709).
- Purton, J.A., Allan, N.L., Blundy, J.D., and Wasserman, E.A. (1996) Isovalent trace element partitioning between minerals and melts: A computer simulation study *Geochimica et Cosmochimica Acta*, 60, 4977-4987.
- Purton, J.A., Blundy, J.D., and Allan, N.L. (2000) Computer simulation of high-temperature, forsterite-melt partitioning. *American Mineralogist*, 85, 1087-1091.
- Reagan, M.K., Volpe, A.M., and Cashman, K.V. (1992) ^{238}U - and ^{232}Th -series chronology of phonolitic fractionation at Mount Erebus, Antarctica. *Geochimica et Cosmochimica Acta*, 56, 1401-1407.
- Richter, F.M., Parsad, N., Davis, A.M., and Hashimoto, A. (1999) CAI cosmobarometry. *Lunar and Planetary Science Conference XXX*, Houston, TX.
- Rogers, N.W., Evans, P.J., Blake, S., Scott, S.C., and Hawkesworth, C.J. (2004) Rates and timescales of fractional crystallization from ^{238}U - ^{230}Th - ^{226}Ra disequilibria in trachyte lavas from Longonot volcano, Kenya. *Journal of Petrology*, 45, 1747-1776.
- Roskosz, M., Toplis, M.J., and Richet, P. (2005) Experimental determination of crystal growth rates in highly supercooled aluminosilicate liquids: Implications for rate-controlled processes. *American Mineralogist*, 90, 1146-1156.
- Ryerson, F.J., and Hess, P.C. (1978) Implication of liquid-liquid distribution coefficients to mineral-liquid partitioning. *Geochimica et Cosmochimica Acta*, 42, 921-932.
- Saal, A.E., and Van Orman, J.A. (2004) The ^{226}Ra enrichment in oceanic basalts: Evidence for melt-cumulate diffusive interaction processes within the oceanic lithosphere. *G3*, 5, doi:10.1029/2003GC000620.
- Schaefer, S.J., Sturchio, N.C., Murrell, M.T., and Williams, S.N. (1993) Internal ^{238}U -series systematics of pumice from the November 13, 1985 eruption of Nevado del Ruiz, Columbia. *Geochimica et Cosmochimica Acta*, 57, 1215-1219.
- Shannon, R.D. (1976) Revised effective ionic radii and systematic studies of interatomic distances in halides and chalcogenides. *Acta Crystallographica, A* 32, 751-767.
- Simon, S.B., Kuehner, S.M., Davis, A.M., Grossman, L., Johnson, M.L., and Burnett, D.S. (1994) Experimental studies of trace element partitioning in Ca, Al-rich compositions: anorthite and perovskite. *Geochimica et Cosmochimica Acta*, 58, 1507-1523.
- Simpson, J.J., and Grun, R. (1998) Non-destructive gamma spectrometric U-series dating. *Quaternary Geochronology*, 17, 1009-1022.
- Sims, K.W.W., Goldstein, S.J., Blinchert-Toft, J., Perfit, M.R., Kelemen, P., Fornari, D.J., Michael, P., Murrell, M.T., Hart, S.R., DePaolo, D.J., Layne, G., Ball, L., Jull, M., and Bender, J. (2002) Chemical and isotopic constraints on the generation and transport of magma beneath the East Pacific Rise. *Geochimica et Cosmochimica Acta*, 66, 3481-3504.
- Singer, B.S., Dungan, M.A., and Layne, G.D. (1995) Textures and Sr, Ba, Mg, Fe, K, and Ti compositional profiles in volcanic plagioclase: Clues to the dynamics of calc-alkaline magma chambers. *American Mineralogist*, 80, 776-798.

- Slaby, E., and Gotze, J. (2004) Feldspar crystallization under magma-mixing conditions shown by cathodoluminescence and geochemical modeling-a case study from the Karkonosze pluton (SW Poland). *Mineralogical Magazine*, 68, 561-577.
- Smith, J.V., and Brown, W.L. (1988) *Feldspar Minerals*, Vol. 1. Springer-Verlag.
- Speit, B., and Lehmann, G. (1982) Radiation defects in feldspars. *Physics and Chemistry of Minerals*, 8, 77-82.
- Stebbins, J.F. (1995) Dynamics and structure of silicate and oxide melts: Nuclear magnetic resonance studies. In J.F. Stebbins, P.F. McMillan, and D.B. Dingwell, Eds. *Structure, Dynamics, and Properties of Silicate Melts*, 32, p. 191-246. Mineralogical Society of America, Washington, D.C.
- Steele, I.M., Peters, M.T., Shaffer, E.E., and Burnett, D.S. (1997) Minor element partitioning and sector zoning in synthetic and meteoritic anorthite. *Geochimica et Cosmochimica Acta*, 61, 415-423.
- Stirling, D., Duncan, A.M., Guest, J.E., and Finch, A.A. (1999) Petrogenesis of plagioclase phenocrysts of Mount Etna, Sicily, with particular reference to the 1983 eruption: Contribution from cathodoluminescence petrography. *Mineralogical Magazine*, 63, 189-198.
- Stolper, E., and Paque, J.M. (1986) Crystallization sequences of Ca-Al-rich inclusions from Allende: The effects of cooling rate and maximum temperature. *Geochimica et Cosmochimica Acta*, 50, 1785-1806.
- Telfer, D.J., and Walker, G. (1978) Ligand field bands of Mn²⁺ and Fe³⁺ luminescence centres and their site occupancy in plagioclase feldspars. *Modern Geology*, 6, 199-210.
- Toplis, M.J., and Corgne, A. (2002) An experimental study of element partitioning between magnetite, clinopyroxene and iron-bearing silicate liquids with a particular emphasis on vanadium. *Contributions to Mineralogy and Petrology*, 144, 22-37.
- Tsuchiyama, A. (1983) Crystallization kinetics in the system CaMgSi₂O₆-CaAl₂Si₂O₈: The delay in nucleation of diopside and anorthite. *American Mineralogist*, 68, 687-698.
- Turner, S., Evans, P., and Hawkesworth, C. (2001) Ultrafast source-to-surface movement of melt at island arcs from ²²⁶Ra-²³⁰Th systematics. *Science*, 292, 1363-1366.
- Turner, S.P., George, R., Jerram, D.A., Carpenter, N., and Hawkesworth, C. (2003) Case studies of plagioclase growth and residence times in island arc lavas from Tonga and the Lesser Antilles, and a model to reconcile discordant age information. *Earth and Planetary Science Letters*, 214, 279-294.
- Van Orman, J.A., Saal, A.E., Bourdon, B., and Hauri, E.H. (2006) Diffusive fractionation of U-series radionuclides during mantle melting and shallow-level melt-cumulate interaction. *Geochimica et Cosmochimica Acta*, 70, 4797-4812.
- van Westrenen, W., Allan, N.L., Blundy, J.D., Purton, J.A., and Wood, B.J. (2000) Atomistic simulation of trace element incorporation into garnets-comparison with experimental garnet-melt partitioning data. *Geochimica et Cosmochimica Acta*, 64, 1629-1639.
- van Westrenen, W., Blundy, J., and Wood, B. (1999) Crystal-chemical controls on trace element partitioning between garnet and anhydrous silicate melt. *American Mineralogist*, 84, 838-847.

- van Westrenen, W., Wood, B.J., and Blundy, J.D. (2001) A predictive thermodynamic model of garnet-melt trace element partitioning. Contributions to Mineralogy and Petrology, 142, 219-234.
- Vander Auwera, J., Longhi, J., and Duchesne, J.C. (2000) The effect of pressure on D_{Sr} (plag/melt) and D_{Cr} (opx/melt): Implications for anorthosite genesis. Earth and Planetary Science Letters, 178, 303-314.
- Vanko, D.A., and Laverne, C. (1998) Hydrothermal anorthitization of plagioclase within the magmatic/hydrothermal transition at mid-ocean ridges: examples from deep sheeted dikes (Hole 504B, Costa Rica Rift) and a sheeted dike root zone (Oman ophiolite). Earth and Planetary Science Letters, 162, 27-43.
- Volpe, A.M., and Hammond, P.E. (1991) ^{238}U - ^{230}Th - ^{226}Ra disequilibrium in young Mount St. Helens rocks: Time constraints for magma formation and crystallization. Earth and Planetary Science Letters, 107, 475-486.
- Voltaggio, M., Branca, M., Tedesco, D., Tuccimei, P., and Di Pietro, L. (2004) ^{226}Ra -excess during the 1631-1944 activity period of Vesuvius (Italy): a model of alpha-recoil enrichment in a metasomatized mantle and implications on the current state of the magmatic system. Geochimica et Cosmochimica Acta, 68, 167-181.
- Watson, B. (1976) Two-liquid partition coefficients: Experimental data and geochemical implications. Contributions to Mineralogy and Petrology, 56, 119-134.
- Watson, E.B., and Liang, Y. (1995) A simple model for sector zoning in slowly grown crystals: Implications for growth rate and lattice diffusion, with emphasis on accessory minerals in crustal rocks. American Mineralogist, 80, 1179-1187.
- Wood, B.J., and Blundy, J.D. (1997) A predictive model for rare-earth-element partitioning between clinopyroxene and anhydrous silicate melt. Contributions to Mineralogy and Petrology, 129, 166-181.
- (2001) The effect of cation charge on crystal-melt partitioning of trace elements. Earth and Planetary Science Letters, 188, 59-71.
- Yang, H.-Y., Salmon, J.F., and Foster, W.R. (1972) Phase equilibria of the join akermanite-anorthite-forsterite in the system CaO-MgO-Al₂O₃-SiO₂ at atmospheric pressure. American Journal of Science, 272, 161-188.
- Zellmer, G., Turner, S., and Hawkesworth, C. (2000) Timescales of destructive plate margin magmatism: New insights from Santorini, Aegean volcanic arc. Earth and Planetary Science Letters, 174, 265-281.