

Graduate Research in Geology (1998-present)

1. Graduate Student Presentations at Scientific Meetings

2005

Cooney, K.S., Farquhar, J. and Fogel, M.L. (2005) Fractionation of isotopes in Maryland precipitation nitrate. Goldschmidt Conference Abstract. (**poster**)

Honesto, J.M., McDonough, W.F., Walker, R.J., McCoy, T.J. and Ash, R.D. (2005) ^{187}Re - ^{187}Os isotopic and highly siderophile element systematics of Group IVB Irons. Lunar and Planetary Science Conference, 36. (**oral**)

Corrigan, C.M., Rumble, D., McCoy, T.J., Ash, R.D., McDonough, W.F., **Honesto, J.M.** and Walker, R.J. (2005) The Tishomingo Iron: Relationship to IVB Irons, CR chondrites and angrites and implications for the origin of volatile-depleted iron meteorites. Lunar and Planetary Science Conference, 36. (**oral**)

Jamieson, J.W., Wing, B.A., Hannington, M.D. and Farquhar, J. (2005) Multiple sulfur isotopes as a tracer for sources of sulfur at the Kidd Creek VMS Deposit, Ontario. Geological Association of Canada/Mineralogical Association of Canada Annual Meeting, Abstract. (**oral**)

Jamieson, J.W., Wing, B.A., Hannington, M.D. and Farquhar, J. (2005) Isotopic disequilibrium in sulfide mineral pairs from multiple sulfur isotopes. 15th Annual Goldschmidt Conference, Abstract. (**poster**)

Johnston, D.T., Farquhar, J., Wing, B.A., Kaufman, A.J., Canfield, D.E., Lyons, T., Kah, L. and Strauss, H. (2005) Using the multiple isotopes of sulfur to constrain microbial processes in the Proterozoic Ocean. Goldschmidt Conference. (**oral**)

Teng, F.-Z., McDonough, W.F., Rudnick, R.L. and Walker, R.J. (2005) Lithium isotopic fractionation in pegmatites. Fifteenth Annual V.M. Goldschmidt Conference. (**poster**)

2004

Baker, M.A., Brown, M., Johnson, T.E., Nex, P.A. and Wing, B.A. (2004) The Platreef and its footwall: Preliminary observations from the footrock perspective. Geoscience Africa 2004, Abstracts, Vol. 1, 31-32. (**poster**)

Centorbi, T.L., Walker, R.J. and Minarik, W.G. (2004) Re-Os systematics of variably altered ultramafic rocks, North Carolina. Eos, Transactions of the American Geophysical Union, 85, Fall Meeting, Supplement, Abstract V31C-1454. (**poster**)

Crummett, C.D., Candela, P.A., Wylie, A.G. and Earnest, D.J. (2004) Examination of the Thermal Decomposition of Chrysotile by Using Petrographic Microscopy and X-ray Diffraction Techniques. American Geophysical Union Fall Meeting. (**poster**)

Brody, K.B., Kaufman, A.J., Eigenbrode, J.L. and Cody, G.D. (2004) Biomarker geochemistry of a post-glacial Neoproterozoic succession in Brazil. Geological Society of America Meeting, Abstracts with Programs, v. 36, no. 5, p. 477. (**oral**)

Gangopadhyay, A., Sproule, R., Walker, R.J. and Leshner, C.M. (2004) Re-Os systematics of komatiites and komatiitic basalts at Dundonald Beach, Ontario, Canada: Evidence for a complex alteration history and implications of a late Archean chondritic mantle source. American Geophysical Union, Fall Meeting Abstract. (**poster**)

Piccoli, P.M., **Englander, L.** and Candela, P.A. (2004) Constraints on variable Ag:Cu ore-metal ratios in felsic arc-magmas. Eos, Transactions of the American Geophysical Union Fall Meeting, 85(47), Suppl., Abstract V-31A-1416. (**poster**)

Piccoli, P.M., Simon, A.C., Candela, P.A. and **Englander, L.** (2004) Porphyry-ore systems: Constraints on copper, gold and silver behavior based on experiments. IAVCEI International association of Volcanology and Chemistry of the Earth's Interior, Pucon, Chile. (**oral; invited keynote speaker**)

Gangopadhyay, A., Sproule, R., Walker, R.J. and Leshner, C.M. (2004) Re-Os abundance and isotope systematics of Al-undepleted komatiites in the Kidd-Munro assemblage: results from Dundonald Beach, Abitibi Greenstone Belt, Canada. Joint Assembly Suppl. Abstract, V51B-06. (**poster**)

Hughes, A. (2004) The Indian Creek Natural Gas Field as an analog for carbon sequestration. Geological Society of America Northeast-Southeast Section.

Friedmann, J., Burruss, R.C., Brennan, S.T., **Hughes, A.** and Nummedal, D. (2004) High CO₂ gas fields: Natural analogs to the chemical evolution of CO₂ storage in depleted gas fields. 1A25 Paper 140. (**oral**)

Ireland, T.J., Walker, R.J., DePaolo, D.J. and Kurz, M.D. (2004) A combined He and Os isotopic study of the HSDP-2 core from Mauna Kea, Hawaii. American Geophysical Union Fall Meeting. (**poster**)

Reif, C., Dziewonski, A., **Ireland, T.**, Hammond, J. and Lekic, V. (2004) Characterizing deep (> 500 km) earthquake regions to investigate the fate of subducting slabs. American Geophysical Union Fall Meeting (CIDER summer program). (**poster**)

Farquhar, J., Wing, B. and **Johnston, D.T.** (2004) Sulfur isotope fractionation in the geologic record. 228th American Chemical Society National Meeting, GEOL 58. (**oral**)

Johnston, D.T., Farquhar, J., Wing, B.A., Habicht, K.S., Canfield, D.E., Airieau, S. and Thiemens, M.H. (2004) Implications of multiple sulfur isotopes for biological systems. International Workshop on Geomicrobiology. (**oral**)

Johnston, D.T., Farquhar, J., Wing, B.A., Habicht, K.S. and Canfield, D.E. (2004) Isotopic fingerprints of sulfur metabolisms: Using the minor isotopes to distinguish between process. NASA Astrobiology Institute FAR series. (**oral**)

Johnston, D.T., Farquhar, J., Wing, B.A., Canfield, D.E. and Habicht, K.S. (2004) Using ^{33}S to differentiate biotic and abiotic sulfur isotope signatures. 14th V.M. Goldschmidt Conference, Copenhagen, Denmark 1011. (**oral**)

Farquhar, J., **Johnston, D.**, Wing, B., Calvin, C. and Condie, K. (2004) Significance of Archean $\Delta^{36}\text{S}/\Delta^{33}\text{S}$. 14th V.M. Goldschmidt Conference, Copenhagen, Denmark 1212. (**oral**)

Farquhar, J., **Johnston, D.T.**, Calvin, C. and Condie, K. (2004) Implications of sulfur isotopes for the evolution of atmospheric oxygen. 35th Lunar and Planetary Institute Conference Abstracts, 1920. (**oral**)

Klochko, K., Kaufman, A.J., Shirey, S., Mock, T., LeRoux, P. and Gallup, C.D. (2004) In-situ boron isotopic analysis of modern and ancient marine carbonates by LA ICP-MS. American Geophysical Union Fall Meeting, Abstracts with Programs, p.370. (**poster**)

Rhodes, Gwendolyn (2004) Paleofloods on the Hells Canyon Reach of the Snake River, Idaho/Oregon, in rapid and catastrophic environmental changes in the Holocene and human response. First Joint Meeting of IGCP 490 and ICSU Environmental Catastrophes in Mauritania, the Desert and the Coast <http://atlas-conferences.com/cgi-bin/abstract/camu-30>. (**oral**)

Teng, F.-Z., McDonough, W.F., Rudnick, R.L. and Gao, S. (2004) Lithium isotopic composition of the deep crust. Eos, Transactions of the American Geophysical Union Fall Meeting, 85 (47), Supplement, Abstract V51C-0597. (**poster**)

Thompson, R.F., Walker, R.J. and Anma, R. (2004) Re-Os systematics of the Taitao Ophiolite in Southern Chile. American Geophysical Union Fall Meeting. (**poster**)

Timpa, S and Rudnick, R. (2004) Lithospheric dynamics inferred from lower crustal xenoliths from Northern Tanzania. International Basement Tectonics Conference, Oak Ridge TN. (**poster**)

Timpa, S. and Rudnick, R. (2004) Dynamics of Archean lithosphere in Northern Tanzania. Geological Society of America Annual Meeting 2004, Denver Colorado. (**poster**)

Tyra, M. (2004) NASA Astrobiology Institute (NAI Seminar Series), Forum for Astrobiology Research (FAR) Series, Terrestrial Alteration of CM Chondritic carbonate 04/12/2004 01:00 PM PST { HYPERLINK "http://nai.arc.nasa.gov/seminars/seminar_detail.cfm?ID=50" } (**oral**)

Tyra, M.A., Farquhar, J., Wing, B.A., Benedix, G.K., Jull, A.J.T., Jackson, T. and Thiemens, M.H. (2004) Terrestrial alteration of CM chondritic carbonate. 35th Lunar and Planetary Institute Conference Abstract, 1988. (**oral**)

2003

Tomascak, P.B., Brown, M., Solar, G.S. and **Centorbi, T.L.** (2003) Isotopic Signatures of Acadian Granites from the Laurentian Border: an eye into basement sources and mantle contributions in a convergent setting. Geological Society of America Annual Meeting, Seattle, Washington, paper 228-3, Abstracts with programs, 554. (**poster**)

Gangopadhyay, A., Walker, R.J., Sproule, R.A. and Lesher, C.M. (2003) Major and trace element geochemistry and Os isotopic compositions of komatiites from Dundonald Beach, Abitibi Greenstone Belt, Canada. *Eos, Transactions of the American Geophysical Union*, **84**, F1598. (**poster**)

Hughes, A. (2003) GEOC/CO₂ Sequestration: Advanced technologies for predicting and monitoring isolation performance. 226th ACS National Meeting (New York, Fall 2003).

Johnston, D. (2003) Union session on the evolution of biogeochemical cycles. American Geophysical Union Fall Meeting. (**oral**)

Johnson, D.T., Farquhar, J., Wing, B.A., Canfield, D.E. and Habicht, K.S. (2003) Implications of multiple sulfur isotopes for biological systems. American Geophysical Union Fall Meetings Abstracts 52, 03. (**oral**)

Farquhar, J., **Johnson, D.T.**, Wing, B.A. Habicht, K.S. Canfield, D.E., Airieau, S. and Thiemens, M.H. (2003) The effect of biosynthetic networks on mass-dependent sulfur isotope fractionation. 34th Lunar and Planetary Science Conference, #1908. (**poster**)

Simon, A.C., Candela, P.A., Piccoli, P.M., Pettke, T. and Heinrich, C. (2003) Gold concentrations in magmatic vapor and brine near the critical point. Geological Association of Canada/Mineralogical Association of Canada Annual Meeting, Vancouver. (**oral; invited**)

2002

Brabson, E., Wing, B.A., Farquhar, J., Kaufman, A.J., Rumble, D., III and Bekker, A. (2002) Implications of anomalous $\Delta^{33}\text{S}$ for evolution of atmospheric oxygen, continental weathering, and Paleoproterozoic glaciation. Geological Society of America, Abstracts with Programs. (**poster**)

Wing, B.A., **Brabson, E.**, Farquhar, J., Kaufman, A.J., Rumble, D., III and Bekker A. (2002) $\Delta^{33}\text{S}$, $\delta^{13}\text{C}$ constraints on the Paleoproterozoic atmosphere during the earliest Huronian glaciation. In Twelfth Annual V.M. Goldschmidt Conference Abstracts with Program, LPI Contribution No., Lunar and Planetary Institute, Houston. (**oral**)

Carter, B.L. and Jiang, D. (2002) Kinematic analysis of the Garth Run shear zone in the Blue Ridge Province of Virginia. Geological Society of America, Abstracts with Programs, 34, 1. (**poster**)

Jiang, D., Williams, P.F. and **Carter, B.L.** (2002) Development of kink-bands and chevron folds in anisotropic materials: a numerical modeling study. Geological Society of America, Abstracts with Programs, 34, 1. (**oral**)

Jiang, D., Williams, P.F. and **Carter, B.L.** (2002) Numerical modeling of the development of kink-bands in anisotropic rocks: IMA Workshop on "Nonlinear Continuum Mechanics, Rheology and the Dynamo. March 18-22, 2002, University of Minnesota. (**oral**)

Centorbi, T.L., **Tomascak, P.B.**, Brown, M., **Solar, G.S.** and **Tian, J.** (2002) Nature of the crust near the Grenville border: New Pb isotope data from the Mooselookmeguntic Igneous Complex, Maine. Geological Society of America, Abstracts with Program. (**poster**)

Dai, T. and Jiang, D. (2002) Kinematics and deformation history of the central Cross Lake shear zone in Manitoba. Geological Society of America, Abstracts with Programs, 34, 1. (**poster**)

Frank, M.R., Candela, P.A., Piccoli, P.M., Pettke, T. and Heinrich, C. (2002) Gold and copper partitioning between vapor and brine at 800°C and 100 MPa. Eos, Transactions of the American Geophysical Union, 83, S362. (**oral; invited**)

Gangopadhyay, A., Walker, R.J. and Hanski, E. (2002) A comparative Os isotopic study of Al-undepleted komatiites from the Abitibi greenstone belt and Ti-enriched komatiites from the Finnish Lapland. Fall Meeting, V52C-1297. (**poster**)

Gangopadhyay, A., Walker, R.J. and Hanski, E. (2002) A chondritic initial $^{187}\text{Os}/^{188}\text{Os}$ for komatiites from the Finnish Lapland. Spring Meeting, V42A-04. (**poster**)

Greenwood, W. and Wylie, A.G. (2002) The optical properties and chemical composition of fibrous talc. ASTM Johnson Conference, July 21-25, Johnson, Vermont. (**oral**)

Farquhar, J. and **Johnson, D.T.** (2002) Strategies for life detection using sulfur isotopes. Eos, Transactions of the American Geophysical Union, 83 (47). (**oral**)

Simon, A.C., Candela, P.A. and Piccoli, P.M. (2002) Sulfur's effect on iron concentration in chloride-bearing, aqueous, hydrothermal-magmatic fluids. Eos, Transactions of the American Geophysical Union, V22A-04. (**oral**)

Simon, A.C., Candela, P.A., Piccoli, P.M., Pettke, T. and Heinrich, C.A. (2002) Gold solubility in magnetite. Geological Society of America Fall Meeting. (**oral**)

Brown, M. and **Solar, G.S.** (2002) Rheological transitions in space and time in orogens. Mineralogical Society Winter Meeting, University of Derby, 7-9 January 2002, Timing, Transition and Tectonics, Program & Abstract Volume, 93-94. (**oral**)

Brown, M. and **Solar, G.S.** (2002) Connecting pieces of the Acadian puzzle in the northern Appalachians. Geological Society of America, Northeast Section, Springfield, Massachusetts, Abstracts with Programs, 34, A-61. (**oral**)

Johnson, T.E., Brown, M. and **Solar, G.S.** (2002) Petrogenesis of Acadian metapelitic migmatites, western Maine-quantitative investigations in the NCKFMASH model system. Geological Society of America, Northeast Section, Springfield, MA, Abstracts with Programs, 34, A-71. (**oral**)

Brown, M., Marchildon, N. and **Solar, G.S.** (2002) Synergistic effects of melting and deformation. Transport and flow processes in shear zones. Joint International Research Meeting, Tectonic Studies Group, Geological Society of London, Structural Geology & Tectonics Division, Geological Society of America and Geological Society of Australia. Program and Abstract, 12. (**oral**)

Brown, M., Johnson, T., Marchildon, N. and **Solar, G.S.** (2002) Controls on gneiss dome formation: Chickens, eggs and red herrings. Geological Society of America Annual Meeting, Denver, Colorado, Abstracts with Programs, 50, 107. (**oral**)

Teng, F.-Z., McDonough, W.F., Rudnick, R.L., Tomascak, P.B. and Dalpé, C. (2002) Lithium content and isotopic composition of the Upper Continental Crust", Eos, Transactions of the American Geophysical Union Fall Meeting. Suppl., Abstract V61D-12. (**oral**)

Rudnick, R.L., McDonough, W.F., **Tomascak, P.B.** and Baker, E (2002) Lithium isotopic composition of xenolithic eclogites: Implications for subduction zone processes. Eos, Transactions of the American Geophysical Union, 83 (47), F1428. (**oral**)

Kaufman, A.J., **Varni, M.A.** and Wing, B. (2002) Sulfur isotope constraints on the Snowball Earth. Geological Society of America topical session on Microbial Sulfur Transformations through Earth's History. (**oral**)

Babinski, M., Kaufman, A.J. and **Varni, M.A.** (2002) New evidence for Sturtian glaciation in Brazil based on Pb isotopes. Gondwana 11 Correlations and Connections IGCP Research Conference. (**oral**)

2001

Piccoli, P.M., **DeHarde, A.** and Wylie, A.G. (2001) Recycling coal combustion byproducts: A laboratory study to evaluate grout formulations for use in the Kempton mine complex, western Maryland. Geological Society of America, Abstracts with Programs. (**oral**)

Frank, M.R., Candela, P.A., Piccoli, P.M. and Glascock, M.D. (2001) Gold solubility and partitioning in granite-volatile phase systems as a function of HCl. In Eleventh Annual V.M. Goldschmidt Conference, Abstract #3773, LPI Contribution No. 1088, Lunar and Planetary Institute, Houston (CD-ROM). (**oral; invited**)

Gangopadhyay, A. and Walker, R.J. (2001) Os isotopic composition of late-Archean komatiites from Alexo, in the Abitibi greenstone belt, Canada. Eos, Transactions of the American Geophysical Union, **82**, F1312. (**poster**)

Gangopadhyay, A. and Walker, R.J. (2001) Os isotopic composition of komatiites from Alexo in the Abitibi Greenstone Belt, Canada. Fall Meeting, V22A-1010. (**poster**)

Gangopadhyay, A., Sen, G. and Hickey-Vargas, R. (2000) An experimental petrologic study of basalts from selected formations of the Deccan Traps, India, Spring Meeting. V21A-05. (**oral**)

Simon, A.C., Candela, P.A. and Piccoli, P.M. (2001) An experimental study of magnetite solubility as a function of pressure along the Dewpoint Curve in the NaCl-, KCl-, HCl-H₂O-melt system. Eos, Transactions of the American Geophysical Union, San Francisco, V32B-968. (**poster**)

Tomascak, P.B., Brown, M., Becker, H., **Solar, G.S.** and **Tian, J.** (2001) Multiple sources and multiple processes: unraveling Acadian magmatism. Geological Society of America, Northeastern Section, Burlington, Vermont, Abstracts with Programs, 33, A-67. **(oral)**

Brown, M. and **Solar, G.** (2001) Three-dimensional spatial and temporal evolution of rheology in orogens: A field perspective. Eos, Transactions, American Geophysical Union, 82, Fall Meeting Supplement, Abstract T11F-11. **(poster)**

Varni, M.A., Kaufman, A.J., Misi, A. and Brito Neves, B.B. (2001) Anomalous $\delta^{34}\text{S}$ signatures in trace sulfate from a potential cap carbonate in the Neoproterozoic Bambui Group, Brazil. Geological Society of America, Abstracts with Programs, 33, A-96. **(oral)**

Kaufman, A.J., **Varni, M.A.**, Misi, A. and Brito-Neves, B.B. (2001) Anomalous $\delta^{34}\text{S}$ signatures in trace sulfate from a potential cap carbonate in the Neoproterozoic Bambui Group, Brazil. Proterozoic base metal deposits of Africa and South America. Organizers Aroldo Misi and Joao Batista G. Teixeira. Belo Horizonte: CNPq and UNESCO/IUGS 2001, p. 62-64. **(oral)**

Farquhar, J., Wing, B., Hu, G., Rumble, D. III, Kaufman, A.J. and **Varni, M.** (2001) Implications of mass-independent fractionations for the Earth's early sulfur cycle. Geological Society of America, Abstracts with Programs, 33, A-95. **(oral)**

2000

Cook, D.A., Walker, R.J. and Horan, M.F. (2000) New applications of the ^{187}Re - ^{187}Os and ^{190}Pt - ^{186}Os isotope systems to the study of iron meteorites. Lunar and Planetary Science Conference **XXXI**, Abstract #1347, Lunar and Planetary Institute, Houston (CD-ROM). **(oral)**

Frank, M.R., Candela, P.A. and Piccoli, P.M. (2000) Variations in silicate melt composition as a function of the acidity of a coexisting brine: Implications for melt structure. Geological Society of America, Abstracts with Programs, 32, 434 (31/92). **(oral)**

Frank, M.R., Candela, P.A., Piccoli, P.M. and Glascock, M.D. (2000) Au solubility and partitioning in granite-volatile phase systems as a function of HCl. Geological Association of Canada/Mineralogical Association of Canada for their Annual Meeting. Geocanada 2000, 423. **(oral)**

Piccoli, P.M., Candela, P.A. and **Frank, M.R.** (2000) In-situ fractionation in a granodiorite-dike complex: An example from the Cathedral Peak Granodiorite, California. Geological Society of America, Abstracts with Programs, 32, 496. **(oral)**

Hackley, P.C. and Brown, M. (2000) The role of mafic magma in the Acadian orogeny – Early results from the Flagstaff Lake Igneous Complex, western Maine. Geological Society of America Annual Meeting, Reno, Nevada, Abstracts with Programs, 32, A-148. **(poster)**

Solar, G.S. and Brown, M. (2000) Metasediments, migmatites and peraluminous granites: Relations between source and silicic melts in the Acadian metamorphic belt of western Maine, USA. LITHOPROBE Report #75, 100-101. **(poster)**

Brown, M. and **Solar, G.S.** (2000) Feedback relations between deformation and melt, the evolution from weakening to hardening in transpressive orogens. *Journal of Czech Geological Society*, 45, 215-216. (**oral; invited**)

Brown, M. and **Solar, G.S.** (2000) Do multistage processes link leucosomes and smaller-volume granites in migmatites to leucogranite in plutons – an example from the Acadian orogen, western Maine? Geological Society of America Annual Meeting, Reno, Nevada, Abstracts with Programs, 32, A-54. (**oral**)

Solar, G.S. and Brown, M. (2000) Using porphyroblast-matrix relations to unravel mechanisms of strain accommodation during orogenesis – An example from the Acadian orogen, western Maine. Geological Society of America, Annual Meeting, Reno, Nevada, Abstracts with Programs, 32, A-54. (**oral**)

Brown, M. and **Solar, G.S.** (2001) Evidence for multistage processes linking residual migmatites derived from metapelite to S-type leucogranites. In: Chappell, B. and Fleming, P. (Eds), *S-type Granites and Related Rocks*, AGSO Record 2001/2, 23-24. (**oral**)

Brown, M. and **Solar, G.S.** (2001) Processes that link fertile protolith, melt-depleted crust and peraluminous granite. Geological Society of America, Northeastern Section, Burlington, Vermont, Abstracts with Programs, 33, A-6. (**oral**)

1999

Brown, M., **Brown, M.A.**, Carlson, W.D. and Denison, C. (1999) Microstructure of melt flow networks in natural partially-molten systems: Information from 3-D images of anatectic migmatites. *Deformation Mechanisms, Rheology, Microstructures*, Neustadt an der Weinstrasse, 22-26 March 1999, 12. (**oral**)

Brown, M., **Brown, M.A.**, Carlson, W.D. and Denison, C. (1999) Microstructure of natural partially-molten systems: Three-dimensional images of leucosome geometry in two anatectic migmatites, and implications for melt flow. *EUG 10 Abstract Volume, Journal of Conference Abstracts*, 4/1, 677. (**oral**)

Frank, M.R., Candela, P.A., Piccoli, P.M. and Glascock, M.D. (1999) Gold partitioning in a sulfur-free magmatic brine-haplogranitic melt-metallic gold system at 800°C and 100 MPa. *Eos, Transactions of the American Geophysical Union*, 80, 360. (**oral**)

Hall, M.S., Candela, P.A. and Piccoli, P.M. (1999) Nucleation of talc by reaction between tremolite and phlogopite-bearing assemblages and chloride-sulfate brines at 500°C and 50 MPa. *Eos, Transactions of the American Geophysical Union*, 80, 348. (**poster**)

Kaufman, A.J., **Hebert, C.**, Halverson, G.P., Bekker, A. and Strauss, H. (1999) The biogeochemical aftermath of Snowball Earth conditions. Geological Society of America, Abstracts with Programs, 31, A485. (**oral**)

Lynton, S.J., Walker, R.J. and Candela, P.A. (1999) An experimental study of lithium isotopes and geochemistry in felsic systems. *Eos, Transactions of the American Geophysical Union*, 80, F1157. (**oral**)

Brown, M. and **Solar, G.S.** (1999) The synergetic relation between deformational and thermal processes in convergent orogens, and its role in granite ascent. Halls Gap, SGTS Conference Abstract Volume, Geological Society of Australia Abstract Series, 53, 22-23. (**oral; extended presentation**)

Brown, M. and **Solar, G.S.** (1999) The synergy between mechanical and thermal processes in transpressive orogens: An example from the Northern Appalachians, USA. *Deformation Mechanisms, Rheology, Microstructures*, Neustadt an der Weinstrasse, 22-26 March 1999, 161. (**oral**)

Solar, G.S. and Brown, M. (1999) Structural control of syntectonic melt flow paths during Devonian (Acadian) orogenesis, West-Central Maine. Geological Society of America, Northeastern Section, Providence, Rhode Island, Abstracts with Programs, 31, A-69. (**oral**)

Brown, M. and **Solar, G.S.** (1999) The synergy between mechanical and thermal processes in transpressive orogens: An example from the Northern Appalachians, USA. *EUG 10 Abstract Volume, Journal of Conference Abstracts*, 4/1, 83. (**oral**)

Brown, M. and **Solar, G.S.** (1999) A matter of scale of observation: Syntectonic granite ascent and emplacement during the Acadian Orogeny. *Eos, Transactions, American Geophysical Union*, 80, 17, S358-S359. (**oral; invited**)

Solar, G.S. and Brown, M. (1999) Contrasting patterns of strain and kinematic partitioning of flow during Devonian oblique contraction in the Central Maine Belt, Northern Appalachians Orogen, USA. *Eos, Transactions, American Geophysical Union*, 80, 17, S362. (**oral; invited**)

Solar, G.S. and Brown, M. (1999) Metasediments, migmatites and peraluminous granites: Relations between source and silicic melt in the Acadian metamorphic belt of western Maine, USA. *The Origin of Granites and Related Rocks, Fourth Hutton Symposium Abstracts*, documents du BRGM 290, 66. (**poster**)

Solar, G.S. and Brown M. (1999) Metasediments, migmatites and peraluminous granites: Relations between source and silicic melt in the Acadian metamorphic belt of western Maine, USA. *Mineralogical Society Millennium Conference, From Magmas to Mud (and back)*, 66-67 (see { [HYPERLINK](http://link.springer.de/lik/service/journals/10069/conferen/read_99/Brown.htm) "http://link.springer.de/lik/service/journals/10069/conferen/read_99/Brown.htm" }). (**poster**)

1998

Brown, M.A., Brown, M., Carlson, William D. and Denison, C. (1998) Topology of Melt Flow Paths Derived From 3-D Images of Migmatites. *Eos, Transactions, American Geophysical Union*, Supplement to *Eos*, April 28, 1998, S355. (**oral; invited**)

Frank, M.R., Candela, P.A. and Piccoli, P.M. (1998) Estimated copper concentrations in magmatic vapor and brine in a sulfur-bearing brine-vapor-haplogranitic melt-intermediate solid solution-pyrrhotite system at 800°C and 100 MPa. Geological Society of America, Abstracts with Programs, 30, 341. **(oral)**

Brown, M. and **Pressley, R.A.** (1998) Crustal melting in nature: Prosecuting source processes. *Annales Geophysicae*, 16, Suppl. 1, Part 1, C183. **(oral; invited)**

Brown, M. and **Solar, G.S.** (1998) Coupled Early Devonian deformation and granite ascent and emplacement in Western Maine. Geological Society of America, Northeastern Section, Portland, Maine, Abstracts with Programs, 30, 1, 8. **(oral)**

Solar, G.S. and Brown, M. (1998) Partitioned plastic strain and syntectonic metamorphism during Early Devonian dextral Transpression, West-Central Maine. Geological Society of America, Northeastern Section, Portland, Maine, Abstracts with Programs, 30, 1, 75. **(oral)**

Brown, M. and **Solar, G.S.** (1998) Melt extraction and transport during deformation. *Annales Geophysicae*, 16, Suppl. 1, Part 1, C263. **(oral)**

Brown, M. and Solar, **G.S.** (1998) Granite ascent and emplacement in convergent orogens: Syntectonic burps from the anatexis zone. *Eos, Transactions, American Geophysical Union*, Supplement to *Eos*, April 28, 1998, S342. **(oral; invited)**

Solar, G.S. and Brown, M. (1998) Coupled deformation and mineral growth: Syn-tectonic textures. *Eos, Transactions, American Geophysical Union*, Supplement to *Eos*, April 28, 1998, S356. **(oral)**

Brown, M. and **Solar, G.S.** (1998) Feedback relations between deformation and melting: testing implications for granite ascent and emplacement in convergent orogenic belts. Geological Association of Canada NUNA Research Conference/Canadian Tectonics Group 18th Annual Meeting, Evolution of Structures in Deforming Rocks, Abstracts. **(oral)**

Solar, G.S. and Brown, M. (1998) Structural evolution during high-temperature dextral transpressive orogenesis: reading the evidence recorded in porphyroblasts. Geological Association of Canada NUNA Research Conference/Canadian Tectonics Group 18th Annual Meeting, Evolution of Structures in Deforming Rocks, Abstracts. **(oral)**

Walker, R.J., **Tsuru, A.** and Prichard, H. (1998) What is the Os isotopic composition of the convecting upper mantle?: Evidence from the ophiolite perspective. *Eos, Transactions of the American Geophysical Union*, 79. **(oral)**

2. Peer-Reviewed Publications That Include Graduate Student Authors

2005

Gangopadhyay, A., Sproule, R.A., Walker, R.J. and Lesher, M. (2005) Re-Os systematics of komatiites and kimatiiteic basalts at Dundonald Beach, Ontario, Canada: Evidence for a complex alteration history and implications of a late-Archean chondritic mantle source. *Geochimica et Cosmochimica Acta* (in review).

Gangopadhyay, A., Walker, R.J., Hanski, E. and Solheid, P. (2005) Origin of Paleoproterozoic Ti-enriched komatiitic rocks from Jeesiörova, Kittilä Greenstone Complex, Finnish Lapland. *Journal of Petrology* (in review).

Johnston, D.T., Farquhar, J., Wing, B.A., Kaufman, A.J., Canfield, D.E. and Habicht, K.S. (2005) Multiple sulfur isotope fractionations in biological systems: a case study with sulfate reducers and sulfur disproportionators. *American Journal of Science* (in review)

Simon, A.C., Frank, M.R., Pettke, T., Candela, P.A., Piccoli, P.M. and Heinrich, C. (2005) Gold partitioning in vapor-brine-melt systems. *Geochimica et Cosmochimica Acta*, 00,000 (in press).

2004

Cook, D.L., Walker R.J., Horan, M.F., Wasson, J.T. and Morgan, J.W. (2004) Pt-Re-Os systematics of group IIAB and IIIAB iron meteorites. *Geochimica et Cosmochimica Acta*, 68, 1413-1431.

Johnston, D.T., Farquhar, J., Wing, B.A., Kaufman, A.J., Canfield, D.E. and Habicht, K.S. (2004) Multiple sulfur isotopes in biological systems. *American Journal of Science*, 00, 000-000.

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.

2003

Jiang, D., Williams, P.F. and **Carter, B.L.** (2003) Numerical modeling of the development of kink bands in anisotropic plastic materials. *Journal of the Virtual Explorer*, 11.

Frank, M.R., Candela, P.A. and Piccoli, P.M. (2003) Alkali exchange equilibria between a silicate melt and coexisting magmatic volatile phase: an experimental study at 800°C and 100 MPa. *Geochimica et Cosmochimica Acta*, 67, 1415-1427

Gangopadhyay, A. and Walker, R.J. (2003) Re-Os systematics of the ca. 2.7 Ga Alexo komatiites, Ontario, Canada. *Chemical Geology*, 196, 147-162.

Farquhar, J., **Johnston, D.T.**, Wing, B.A., Habicht, K.S., Canfield, D.E., Airieau, S.A. and Thiemens, M.H. (2003) Multiple sulfur isotopic interpretations of biosynthetic pathways: Implications for biological signatures in the sulfur isotope record. *Geobiology*, 1, 15-27.

Johnson, T.E., Brown, M. and **Solar, G.S.** (2003) Low-pressure subsolidus and suprasolidus phase equilibria in the MnNCKFMASH system: Constraints on conditions of regional metamorphism in western Maine, northern Appalachians. *American Mineralogist*, 88, 624-638.

McDonough, W.F., **Teng , F.-Z.**, Tomascak, P.B., Ash, R.D., Grossman, J.N. and Rudnick, R.L. (2003) Lithium isotopic composition of chondritic meteorites. Lunar and Planetary Science Conference. XXXIV, 1931 pdf. (**oral**)

2002

Frank, M.R., Candela, P.A., Piccoli, P.M. and Glascock, M.D. (2002) Gold solubility and partitioning as a function of HCl in the brine-silicate melt-metallic gold system at 800°C and 100 MPa. *Geochimica et Cosmochimica Acta*, 66, 3719-3732. Special volume in tribute to H.D. Holland. (**invited**)

McDonough, W.F., **Teng, F.-Z.**, Rudnick, R.L., Dalpé, D. and Tomascak, P.B. (2002) "Lithium isotopic measurements: MS technique and results for Reference Materials. 3rd International Conference on High Resolution Sector Field ICPMS, Atlanta, Georgia, October 2-5, 2002, pp. 22.

2001

Solar, G.S. and Brown, M. (2001) Petrogenesis of migmatites in Maine, USA: Possible source of peraluminous leucogranite in plutons. *Journal of Petrology*, 42, 789-823.

Solar, G.S. and Brown, M. (2001) Deformation partitioning during transpression in response to Early Devonian oblique convergence, Northern Appalachian orogen, USA. *Journal of Structural Geology*, **23**, 1043-1065.

2000

Piccoli, P.M., **DeHarde, A.**, Wylie, A.G. and Prestegard, K. (2000) Development of a grout for the Kempton Mine: Characterization (XRD, chemical analyses, and SEM/EPMA data) of starting materials. Power Plant Research Project Report, Maryland Department of Natural Resources. (**unrefereed**)

Candela, P.A., **Frank, M.R.** and Piccoli, P.M. (2000) Quantitative modeling of magmatic volatile phase exsolution. *Geochemical Society Goldschmidt Conference. Journal of Conference Abstracts* 52, 284. (**invited**)

Solar, G.S. and Brown, M. (2000) The classic high-*T* — low-*P* metamorphism of west-central Maine, USA: Is it post-tectonic or syn-tectonic? Evidence from porphyroblast-matrix relations. Reply. *Canadian Mineralogist*, 38, 1007-1026.

Tsuru, A., Walker, R.J., Kontinen, A., Peltonen, P. and Hanski, E. (2000) Re-Os isotopic systematics of the Jormua Ophiolite Complex, NW Finland. *Chemical Geology*, 164, 123-141.

1999

Brown, M.A., Brown, M., Carlson, W.D. and Denison, C. (1999) Topology of syntectonic melt flow networks in the deep crust: inferences from three-dimensional images of leucosome geometry in migmatites. *American Mineralogist*, 84, 1793-1818.

Jugo, P.J., Candela, P.A. and Piccoli, P.M. (1999) Magmatic sulfides and Au:Cu ratios in porphyry deposits: an experimental study of copper and gold partitioning at 850°C, 100 MPa in a haplogranitic melt--pyrrhotite--intermediate solid solution--gold metal assemblage, at gas saturation. Published in a Special Issue of *Lithos*, 46, 573-589. (**invited**)

Pressley, R.A. and Brown, M. (1999) The Phillips Pluton, Maine, USA: Evidence of heterogeneous crustal sources, and implications for granite ascent and emplacement mechanisms in convergent orogens. *Lithos*, 46, 335-366. (**invited**)

Brown, M. and **Pressley, R.A.** (1999) Crustal melting in nature: Prosecuting source processes. *Physics and Chemistry of the Earth (A)*, 24, 3, 305-316. (**invited**)

Solar, G.S. and Brown, M. (1999) The classic high-*T* — low-*P* metamorphism of west-central Maine, USA: Is it post-tectonic or syn-tectonic? Evidence from porphyroblast-matrix relations. *Canadian Mineralogist*, 37, 289-311.

Brown, M. and **Solar, G.S.** (1999) The mechanism of ascent and emplacement of granite magma during transpression: a syntectonic granite paradigm. *Tectonophysics*, 312, 1-33. (**invited**)

Tuttle M.P., Collier, J., Wolf, L.W. and Lafferty, R.H. (1999) New evidence for a large earthquake in the New Madrid seismic zone between AD 1400 and 1670. *Geology*, 27 (9), 771-774.

1998

Frank, M.R., Candela, P.A. and Piccoli, P.M. (1998) K-feldspar-muscovite-andalusite-quartz-brine phase equilibria: an experimental study at 25-60 MPa and 400-550°C. *Geochimica et Cosmochimica Acta*, 62, 3717-3727.

Brown, M. and **Solar, G.S.** (1998) Shear zone systems and melts: Feedback relations and self-organization in orogenic belts. *Journal of Structural Geology*, 20, 211-227.

Solar, G.S., **Pressley, R.A.**, Brown, M. and Tucker, R.D. (1998) Granite ascent in convergent orogenic belts: Testing a model. *Geology*, 26, 711-714.

Brown, M. and **Solar, G.S.** (1998) Granite ascent and emplacement during contractional deformation in convergent orogens. *Journal of Structural Geology*, 20, 1,365-1,393.

Horan, M.F., **Smoliar M.** and Walker R.J. (1998) ¹⁸²W and ¹⁸⁷Re-¹⁸⁷Os systematics of iron meteorites: chronology for melting, differentiation and crystallization of asteroids. *Geochimica et Cosmochimica Acta*, 62, 545-554.

3. Awards of Funding Direct to Individual Student

2005

Cooney, Katherine S. – Partial funding of graduate research by Maryland Water Resources Research Center.

Honesto, Jenise M. – Kappa Alpha Theta Foundation Scholarship Award.

Jamieson, John – Jacob K. Goldhaber travel grant from UMD Graduate School for the GACMAC Conference in Halifax, NS.

Johnston, David T. – International school of Aquatic Sciences (SOAS) Graduate Scholarship.

2004

Baker, Margaret Anne – Recipient of a Geological Society of America Graduate Student Research Grant.

Brabson, Elizabeth – NASA Goddard Space Flight Center Earth System Science Fellowship.

Brody, Kristina Bartlett – Recipient of a 2004 Geological Society of America Graduate Student Research Grant.

Cooney, Katherine S. – Partial funding of graduate research by Maryland Water Resources Research Center.

France (Missell), Christine – Geological Society of America Student Grant. "Nitrogen and carbon isotopic evidence of the trophic structure in the Miocene Calvert Cliffs (Maryland, USA) fauna".

Gangopadhyay, Amitava – Ilene H. Nagel Travel Grant.

Gangopadhyay, Amitava – International Association of Geoanalysts (IAG) Travel Grant Award.

Honesto, Jenise M. – Kappa Alpha Theta Foundation Scholarship Award.

Ireland, Thomas – NSERC Post-Graduate Scholarship (NSERC = Natural Science and Engineering Research Council of Canada)

Ireland, Thomas – University of Maryland Graduate School Fellowship.

Johnston, David T. – University of Maryland, Department of Geology, Field Scholarship.

Johnston, David T. – NASA NAI Research Scholarship.

Teerlink, Jennifer – Geological Society of America Grant.

2003

Brabson, Elizabeth – NASA Goddard Space Flight Center Earth System Science Fellowship.

Cooney, Katherine S. – partial funding of graduate research by Maryland Water Resources Research Center.

Ireland, Thomas – NSERC Post-Graduate Scholarship (NSERC = Natural Science and Engineering Research Council of Canada)

Ireland, Thomas – University of Maryland Graduate School Fellowship.

Jamieson, John – Post-Graduate Scholarship from NSERC (Natural Science and Engineering Research Council, Canada) - "Application of sulfur multiple isotopes to formation processes of Archean Volcanogenic Massive Sulfide Deposits."

Johnston, David T. – International school of Aquatic Sciences (SOAS) Graduate Scholarship.

Teerlink, Jennifer – Geological Society of America Grant.

2002

Cooney, Katherine S. – Partial funding of graduate research by Maryland Water Resources Research Center.

Gangopadhyay, Amitava – Jacob K. Goldhaber Travel Grant, UMD Graduate School.

2001

Mann, Jacqueline – EPA STAR Fellowship

Mann, Jacqueline – Sigma Xi Grant

Mann, Jacqueline – Geological Society of America Grant

2000

Rhodes, Gwendolyn – 2-year Graduate School Fellowship

1999

1998

Mann, Jacqueline – EPA STAR Fellowship