Curriculum Vitae

TRACY RUSHMER

Department of Earth and Planetary Sciences, GEMOC, Macquarie University, 2109 NSW, Sydney Australia, Office: E7A 423; Phone: (02) 9850 8366
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CURRENT POSITION:

Associate Professor, Department of Earth and Planetary Sciences, GEMOC, Macquarie University

UNIVERSITY EDUCATION:

Bachelor of Science in Earth Sciences: May, 1981
Dept. of Geology and Geophysics
University of California at Berkeley
Berkeley, California, USA

Ph.D. in Natural Sciences: May, 1991
Geologisches Institüt/ Institüt für Mineralogie und Petrographie
Swiss Federal Institute of Technology at Zürich (ETH)
Zurich, Switzerland
Dissertation title: "The chemical and rheological behavior of amphibolite rocks during fluid-absent partial melting".

Thesis Supervisors: *Prof. Ken Hsü*
Geologisches Institut, ETH Zürich
Dr. Rolf Schmid
Institut für Mineralogie und Petrographie, ETH Zürich
Prof. Stefan Schmid
Geologisches Institut, Basel University

POSITIONS HELD (AS OF 1991):

Associate Professor (2007 – present) Department of Earth and Planetary Sciences, GEMOC, Macquarie University, Sydney Australia
Slater Fellow: (October 2006-December 2006) and Affiliate of the Advanced Study Institute, University College, University of Durham, UK
Associate Professor (2003 – 2007) Department of Geology, University of Vermont
Assistant Professor: (1998-2002) Department of Geology, University of Vermont
Filled tenure-track faculty position for Petrology and Geochemistry. Teaching included advanced classes in igneous petrology in addition to standard classes. Rock deformation studies continued at UVM and new studies using the piston-cylinder laboratory at McGill University (D. Baker) undertaken. NASA-supported projects included in research priorities.
Research Assistant Professor: (1995 - 1998) Department of Geology, University of Vermont. Research funding and external teaching funds supported this position. Established research support from the National Science Foundation. Research was focused mainly on partial melting of mica-bearing assemblages. Internally heated gas apparatus studies undertaken at SUNY Binghamton

(with D. Jenkins). Rock deformation laboratory built at the University of Vermont, Department of Geology. Teaching focused on third year petrology and first year introductory courses.
Post-doctoral Research Associate: (1991 - 1995) A 3-year position (extended until March 1995) funded by the National Science Foundation of Switzerland to Prof. K. Hsü/ Prof. J-P Burg. Emphasis placed on melt segregation processes in the lower crust during partial melting and the changing rheological properties of partially molten crustal rocks during deformation. Fieldwork focused on the mafic amphibolites and granulites of the Ivrea Zone. Experimental piston-cylinder and deformation apparatus laboratories (under Dr. S. Kirby at the United States Geological Survey in Menlo Park) were utilized during the study.

PROFESSIONAL AFFILIATIONS:
1984 - present: Mineralogical Society of America
1984 - present: American Geophysical Union
1992 - present: Geological Society of America
2000- present: Geochemical Society

FUNDING AND PUBLICATIONS:

Awards Received (as of return to the USA in March 1995)

As Principal Investigator:

National Science Foundation Research Planning Grant: January 1 - December 31, 1996 entitled "Melt-induced fracturing during partial melting: Consequences for melt migration and melt geochemistry". Award amount: $17,582.00.

University of Vermont UCRS Grant: January 1 - December 31, 1996 entitled "Temperature controller for solid-media deformation apparatus. Award amount: $3,272.00.
University of Vermont UCRS Extension grant: January 1 - December 31, 1997 entitled "Temperature controller for solid-media deformation apparatus". Award amount: $1865.

National Science Foundation Collaborative Project with University of New Mexico: "Geochemical signatures of melt segregation in static vs. dynamic environments". Duration 3 years, June 1, 1997 - May 31, 2000. UVM Award amount: $125,379. UNM Award amount: $42,939.

National Science Foundation Grant for Student Participation at Penrose Conference: April 1, 1998 - March 31, 1999. Award amount: $6,000.

University of Vermont UCRS Grant: July 1, 1999 - June 30, 2000 entitled "Sr signatures during partial melting: Implications for crustal growth and evolution" (with J. Davidson, UCLA). Award amount: $5100.00

Vermont EPSCoR Minigrant award for equipment: September 2000- August 2001, entitled. "The link between pore pressure development and rock deformation: Implications for fluid migration in the Earth's crust." Award amount: $2500

NASA: March 1, 1998 - February 28, 2000. "Core formation under dynamic conditions". Award amount: $60,000.

NASA: March 1, 2000 - February 28, 2001, "Core formation under dynamic conditions". Award amount: $20,000.

National Science Foundation REU (supports undergraduate research) Supplement Award: July 15, 2000 - December 31, 2000. Awarded amount: $4,250.

University of Vermont, Dean's Fund: Fall, 2000. Funding for fieldwork in Fiordland, New Zealand. Award amount $2000.

University of Vermont, Dean's Fund: Spring 2002. Funding for experimental analysis of Fiordland, New Zealand rocks with undergraduate Adam Olland. Award amount $1400.

NASA: "Core formation under dynamic conditions". March 1, 2001 - February 28, 2004. Award amount: $120,000.

National Science Foundation. July 2001-June 30 2004 (no-cost extension to 1/30/06). entitled "Melt extraction in the lowermost crust: An experimental test of a natural setting". Award amount $158,640.

University of Vermont UCRS Grant: July 1, 2002 - June 30, 2003. Cretaceous age extensional deformation in western New Zealand (Co-I Keith Klepeis). Awarded amount $1000.

National Science Foundation REU (supports undergraduate research) Supplement Award: June 15, 2002 – May 31, 2003. Awarded amount: $4,500.

NASA: "Core formation under dynamic conditions: An experimental investigation of early differentiation processes". March 1, 2005 - February 29, 2005. Requested amount: $25,000

As Co-Investigator:
National Science Foundation grant with Keith Klepeis. January 1, 2001 - December 31, 2004 entitled "The evolution of a convergent orogen from upper to lower crustal levels". Award amount $153,936.

Bierman, P., Lini, A., Klepeis, K., and Rushmer, T. NSF EAR, Acquisition of ICP for Research and Research Training. 3/1/2002-2/29/2004, $126,000.

PAPERS IN REFEREED JOURNALS:

Rushmer, T., (1991). Partial melting of two amphibolites: Contrasting experimental results under fluid-absent conditions. *Contributions to Mineralogy and Petrology.* 107: 41-59.

Rushmer, T., (1993). Experimental high-pressure granulites: Some applications to mafic xenoliths and Archean terranes. *Geology*. 21, No. 5: 411-414.

Peacock, S.M., Rushmer, T. & Thompson, A.B., (1994). Partial melting of subducting oceanic crust. *Earth and Planetary Science Letters,* vol. 121: 227-243.

Rushmer, T., and (1995) An experimental deformation study of partially molten amphibolite: Applications to low-fraction melt segregation. Journal of Geophysical Research Special Section "Segregation of Melts from Crustal Protoliths: Mechanisms and Consequences." Eds. M. Brown, T. Rushmer, E. W. Saywer. *Journal of Geophysical Research,* vol. 100, B8: 15,681-15,696.

Brown, M., T. Rushmer and Saywer, E. W., (1995). Introduction to Journal of Geophysical Research Special Section "Segregation of Melts from Crustal Protoliths: Mechanisms and Consequences." Eds. M. Brown, T. Rushmer, E. W. Saywer. *Journal of Geophysical Research,* vol. 100, B8: 15,551-15,564.

Rushmer, T., (1996). Melt segregation in the lower crust: How have experiments helped us? In: *The Origin of Granites and Related Rocks - Third Hutton Symposium;* Eds. M. Brown and P. Candela, *Transactions of the Royal Society of Edinburgh:* Earth Sciences, vol. 87, 73-83.

Rushmer, T., (1996). The influence of dehydration and partial melting reactions on the seismicity and deformation in warm subducting crust. *In: Subduction: Top to Bottom*; Eds. G. Bebout, D.W. Scholl, S.H. Kirby, J. Platt. Geophysical Monograph 96, 299-306.

Connolly, J. A. D., Holness, M.B., Rubie, D. and Rushmer, T. (1997). Reaction-induced microcracking: An experimental investigation of a mechanism for enhancing anatectic melt extraction. *Geology*, vol. 25, No.7, 591-594.

Brown, M. and Rushmer, T. (1997) "Consequences of deformation-assisted melt segregation: New views from the field and the laboratory". Chapter 5 of "Deformation-enhanced melt segregation and metamorphic fluid transport. *"Mineralogical Society Series; Chapman & Hall Publishers*. pgs. 111-139.

Rushmer, T., Minarik, W. G. and Taylor, G.J. (2000): Physical processes of core formation. *In: Origin of the Earth and Moon*. Eds. K Righter and R. Canup. Lunar Planetary Institute and University of Arizona Publishers. pgs. 227-245.

Rushmer, T. (2001): Volume change during partial melting reactions: Implications for melt extraction, melt geochemistry and crustal rheology. *Tectonophysics*, v. 34 2/3-4, pp. 389-405.

Holyoke, C. III and Rushmer, T. (2002): An experimental study of grain-scale melt segregation mechanisms in crustal rocks. *Journal of Metamorphic Geology*. v. 20, pp. 493-512.

Klepeis, K.A, Clarke, G.L., Rushmer, T., (2003), Magma transport and coupling between deformation and magmatism in the continental lithosphere, *GSA Today*, 13(1), 4-11.

Beard, S. J., Ragland, P.C. and Rushmer, T. (2004): Petrogenetic implications of reactions between anhydrous minerals and hydrous melt to yield amphibole and biotite (hydration crystallization). *Journal of Geology*. Vol. 112, pgs 617–621.

Clarke, G.L., Daczko, Nr. , Klepeis, K.A and Rushmer, T. (2005) Roles for fluid and/or melt advection in forming high-*P* mafic migmatites, Fiordland, New Zealand, (*Journal of Metamorphic Geology*) doi:10.1111/j.1525-1314.2005.00594.x

Petford, N., Yuen, D., Rushmer, T., Brodholt and J. Stackhouse, S. (2005) Shear-induced material transfer across the core-mantle boundary aided by the post-perovskite phase transition Earth Planets Space, 57, 459-464.

Rushmer, T., Petford, N. and Humayun, M. and Campbell, A. J., (2005) Fe-liquid segregation in deforming planetesimals: coupling core forming compositions with transport phenomena. *Earth and Planetary Science Letters*, vol. 239*,* 185-202.

Rushmer, T. and Miller, S. (2006), Melt Migration in the Continental Crust and Generation of Lower Crustal Permeability: Inferences From Experimental Studies and Modeling, Chapter 11 In: *"Evolution and Differentiation of the Continental Crust"*. M. Brown and T. Rushmer (Editors), Cambridge University Press. Cambridge University Press. pgs. 430-454.

Brown, M. and Rushmer, T (2006). Introduction to *Evolution and Differentiation of the Continental Crust*, M. Brown and T. Rushmer (Editors), Cambridge University Press. Cambridge University Press. pgs. 1-23.

Rushmer, T., and Jackson, M.D. (2007) Impact of melt segregation on TTG petrogenesis. *Transactions of the Royal Society of Edinburgh:* Earth Sciences, Pitcher Volume, in press.

Petford, N., Rushmer, T., Yuen, D. (2007) Deformation induced mechanical instabilities at the core – mantle boundary. *American Geophysical Union Monograph*, "The Last Phase Transition" K. Hirose ed. in press.

Ford, R., Benedix, G., McCoy, T Rushmer, T., (in review) Partial Melting of Ordinary Chondrite Under Reducing Conditions. *Meteoritical And Planetary Science (MAPS)*

Books:

Evolution and Differentiation of the Continental Crust. Cambridge University Press, M. Brown and T. Rushmer (Editors). 2006.

Other Publications:

Science news:

Rushmer, T., "Highlights in Metamorphic Petrology in 1996". For *GeoTimes*. February 1997.

Rushmer, T., "Highlights in Metamorphic Petrology in 1999". For *GeoTimes*. July 2000.

Rushmer, T., Brown, M. and Bergantz, G., Penrose Conference Report: "Processes of Crustal Differentiation: Crust-Mantle interactions, Melting and Granite Migration through the Crust." GSA Today, November 1998. pgs. 18-21.

Klepeis, K., Rushmer, T., Clark, G. and Tulloch, A. Penrose Conference Report: "Structural controls on magma transport and vertical coupling in the continental lithosphere." GSA Today, December 2003.

Book reviews:

"Properties of Earth and Planetary Materials at High Temperature and Pressure, American Geophysical Union Monograph Series PAGEOPH, 2000
"Dana's New Mineralogy" by Gaines et al. PAGEOPH, 1999
"Dana's minerals: How to study them" PAGEOPH, 1999
"Serpentinites: Records of Tectonic and Petrological History" by O'Hanley PAGEOPH, 1997
"Petrography to Petrogenesis" by M.J. Hibbard for PAGEOPH, 1996
"Igneous and Metamorphic Petrology" PAGEOPH, 2005
"Dynamic Earth: Plates, Plumes and Mantle Convection by G. F. Davies PAGEOPH, (in press)
"Introduction to the Physics of the Earth's Interior" By J-P Poirier, PAGEOPH, (in press)

Field guides:

Stanley, R., Rushmer, T. Holyoke, C. and Lini, A., 1999, Faults and fluids in the Vermont Foreland and hinterland in western Vermont; in Wright, S.F. ed., New England Intercollegiate Geologic Conference Guidebook Number 91, pp. 135-158.

ABSTRACTS SINCE 2000 (35 prior to 2000):

Rushmer, T., Gaetani, G, Jones, J. H. (2000) Chondrites Under Stress: What Can They Tell Us About Core Formation Processes. *Lunar Planetary Science Conference XXXI*. Abstract #1673, Lunar and Planetary Institute, Houston, (CD ROM).

Rushmer, T., (2000). (INVITED) Fractures and flow: an experimental look at melt segregation processes in the Earth's crust. *Geological Society of Australia*, No 59, pg. 430.

Rushmer, T. and C. Holyoke (2000). (INVITED) Textures in melt-solid systems: experimental deformation of partially molten rocks. *Geological Society of Australia*, No 59, pg. 431.

Rushmer, T., Antignano, A. IV and Brearley, A. J., (2001): Geochemical Signatures of rapid melt segregation in the crust. (*GSA NE section*, v. 33, pg. A-7).

Rushmer, T., Gaetani, G, Jones, J. H. and Sparks, J.W. (2001) Chondrites Under Stress: Physical Processes and Geochemical Signatures at Slow Experimental Strain Rates. *Lunar Planetary Science Conference XXXII*. Abstract #1066, Lunar and Planetary Institute, Houston, (CD ROM).

Rushmer, T., Antignano, IV, A., and Brearley, A.J., (2001) (INVITED Keynote Lecture). Geochemical Signatures of Rapid Melt Extraction., *Goldschmidt Conf.* Abstract #3741.

Rushmer, T., Gaetani, G, Jones, J. H. and Sparks, J.W., (2001). Core Formation Under Dynamic Conditions: Physical Processes and Geochemical Signatures. *Goldschmidt Conf.,* Abstract # 3755.

Klepeis, K.A., Clarke, G.L., Dazcko, N., Rushmer, T., Collins, W.J., (2001), The effects of partial melting and magmatism in the lower crust on the evolution of continental lithosphere: results from Fiordland, New Zealand, *GSA Programs with Abstracts*

Rushmer, T., Jones, J.H., Gaetani, G., Zanda, B. (2001), Metal - silicate separation in a deformation regime: implications for early differentiation processes. *EOS, Trans. Amer. Geophys. Union*.

Klepeis, K.A., Clarke, G., Daczko, N., Hollis, J., Rushmer, T., and W. J. Collins (2001), Conditions Controlling the Degree of Vertical Coupling Between the Upper and Lower Crust of Orogens: Results From Fiordland, New Zealand, *EOS Transactions American Geophysical Union*.

Rushmer, T., (2001), The role of magmatism in the evolution of continental lithosphere: Possible tests using high-resolution seismic imaging. Extended abstract for Earthscope Workshop (October 12-14th, 2001).

Rushmer, T., Gaetani, G., and Jones, J.H. (2002). Linking ordinary and enstatite chondrites: Experimental deformation results under very reducing conditions. *Lunar Planetary Science Conference XXXIII*. Abstract #1318, Lunar and Planetary Institute, Houston, (CD ROM).

Rushmer, T. , Zanda, B., and Bourot-Denise, M. (2002). Experimental deformation of ordinary chondrite under partially molten conditions: application to natural samples and implications for early differentiation processes. *Lunar Planetary Science Conference XXXIII*. Abstract #1706, Lunar and Planetary Institute, Houston, (CD ROM).

Rushmer, T., Antignano, A., Holyoke, C. W. and Brearley, A.J., (2002). (INVITED) Geochemistry of crustal melts: results from deformation experiments. *Geological Society of Australia*.

Rushmer, T., Humayun, M. and Campbell A. J., (2002). Siderophile elements in dynamically segregated metallic liquids. *Geochem Cosmo Acta., V. 66 No. S1, A 656*

Rushmer, T., (2002) Partial melting of ordinary chondrite: Implications for siderophile behavior during early differentiation. *EOS Trans. AGU, 83 (47) Fall. Meet. Suppl.,Abstract V52D-05. pg 1415*.

Rushmer, T., Humayun, M. and Campbell A. J., (2003) Siderophile Elements in Metal Segregated from Partially Molten Ordinary Chondrite: Implications for Early Differentiation Processes. *Lunar Planetary Science Conference XXXIV Abstract #1174, Lunar and Planetary Institute, Houston, (CD ROM)*.

Rushmer, T., Antignano, A. IV and Price, R., (2003) (INVITED) Melt Generation and Extraction in the Lowermost Crust: An Experimental Test of a Natural Setting. *Geological Society of America, Abs with Programs, vol. 35, N.6 pg. 222.*

Rushmer, T., Klepeis, K. (2003) Generation and evolution of lowermost crust of an arc: Examples from Fiordland, New Zealand. *EOS Trans. AGU, CD ROM V41D-03.*

Rushmer, T., Humayun, M., and Campbell, A. J., (2004), Siderophile element abundances in Fe-S-Ni-O melts segregated from partially molten ordinary chondrite under dynamic conditions. *Lunar Planetary Science Conference XXXV Abstract #1850, Lunar and Planetary Institute, Houston.*

Rushmer, T., Humayun, M. and Campbell A. J., (2004) Siderophile Elements in Metal Segregated from Partially Molten Ordinary Chondrite. Spring AGU, Montreal, May 15-19th, 2004.

Rushmer, T. Humayun, M. and Campbell A. J., N. Petford (2004) Metallic Liquid Segregation Under Dynamic Conditions: Implications For Core Formation Rates And Compositions. Early Earth Field Forum, July 3-9th, 2004. South Africa.

Rushmer, T. (2004, INVITED) The Role Of Magmatism In The Evolution Of Continental Lithosphere: From Microstructures To Crustal-Scale Rheology Congress of the Geologic Society of South Africa July 12-16th, 2004.

Rushmer, T., Petford, N. (2004), Ultrarapid core formation in planetesimals, Oxygen in the Terrestrial Planets NASA workshop, July 19-23, 2004.

Rushmer, T. (2004). The role of magmatism in the evolution of continental arc lithosphere: Examples from Fiordland, New Zealand. IAVSCEI, November, 2004, Pucon, Chile.

Petford, N. Yuen, D., Rushmer, T. Broadholt, J. and Stackhouse, S. (2004). Shear-induced metal transfer across the core-mantle boundary aided by the post-peroviskite phase transition. *Eos Trans. AGU, 85 (47) Fall Meet. Suppl. Abstract*

Rushmer, T., Petford, N., Humayun, M. (2005) Shear-induced segregation of Fe-liquid: Coupling core forming liquids with transport phenomena. *Lunar Planetary Science Conference XXXV Abstract #1359, Lunar and Planetary Institute, Houston.*

Humayun, M., Rushmer, T., Rankenburg, K., Brandon, A.D. (2005) A model for siderophile element distribution in planetary differentiation. *Lunar Planetary Science Conference XXXV Abstract #2208, Lunar and Planetary Institute, Houston.*

Petford, N. Yuen, D., and Rushmer, T., (2005) Microscale deformation of (post) perovskite-dominated sediment in the uppermost outer core. *Eos. Trans. AGU* 86 (18) Jt. Assembly Suppl., Abs. U32A-02.

Rushmer, T., Petford, N., Humayun, M. (2006) Can deformation induced core-mantle interaction account for the Late Veneer?. *Lunar Planetary Science Conference XXXVI Abstract, Lunar and Planetary Institute, Houston.*

Petford, N., Rushmer T., and G. Lansdown (2006) Numerical modelling of liquid metal melt transport in partially molten h6 ordinary chondrite. *Lunar Planetary Science Conference XXXVI Abstract, Lunar and Planetary Institute, Houston*

Rushmer, T., Petford, N., Humayun, M. (2006) Metallic liquid migration in dynamic environments: Implications to core formation and metal-silicate interaction at the core-mantle boundary. *COMPRESS Consortium Annual Meeting, June, 2006.*

Rushmer, T., Petford, N., Humayun, M. (2006) The role of deformation in core formation, *Goldschmidt Conference, # 440, August 27-31, 2006, Melbourne Australia*

Rushmer, T., Getsinger, A. Jackson, M. D. (2006) Impact of melt segregation on TTG petrogenesis, *Goldschmidt Conference, # 1082, August 27-31, 2006, Melbourne Australia*

Petford, N., Rushmer, T., Yuen, D., Walte, N. (2006) Can deformation help us explore the chemical nature of the core-mantle boundary? *Eos. Trans. AGU* 87 (18) Jt. Assembly Suppl., Abs. UA41-0802.

ABSTRACTS with students as first author:

Klein , J.D., Cole, J.C., K. Hannula, C. Holyoke, T. Rushmer (2000). Muscovite dehydration-melting concomitant with deformation: An experimental study of the influence of rapid melt pore pressure development on granite rheology II. GSA, NE section, v. 32, pg. A-54.

Troeger, L., Holyoke III, C., Rushmer, T., Antignano IV, A. (2001). Foliation orientation and strain rate controls on strength of pelite during partial melting and deformation. GSA, NE section, v. 32, pg. A-54.

Antignano, A. IV, Rushmer, T. Clarke, G.L., Dazcko, N., Collins, W.J., Klepeis, K.A., (2001) Partial melting of a hornblende-biotite-clinozoisite bearing metadiorite: applications to the deep crust, Fiordland, New Zealand. GSA Programs with Abstracts v. 33, A-211.

Antignano, A. IV, Rushmer, T., Brearley, A. J. (2001) Trace element contents of micas: Defining signatures of partial melting processes in the crust. EOS, Trans. Amer. Geophys. Union.

Antignano, A. IV and Rushmer, T. (2002) Geochemical effects of hydrous phase stability on metadiorite partial melts: Applications to tonalite production in convergent regimes. *GSA NE section, v. 34, A-70..*

Antignano, A. IV and Rushmer, T. (2002) Tonalite generation in arc regimes: Results from metadiorite partial melting experiments. *Geochem Cosmo Acta., V. 66 No. S1, A 24.*

Antignano, A. IV and Rushmer, T. (2002) Constraints on geochemistry and melt volumes from metapelite and metadiorite partial melting experiments. *EOS Trans. AGU, 83 (47) Fall. Meet. Suppl.,Abstract V61A-1356. pg 1419.*

Antignano, A. IV and Rushmer, T. (2003) Orogenic processes in convergent margins: Constraints on geochemistry and melt volumes from partial melting experiments. *AGU-EGS-EUG*.

Ford, R., T. Rushmer, G. K. Benedix, and T. J. McCoy (2003) Filling in the Gap: An Experimental Study on Early Differentiation Processes. *Lunar Planetary Science Conference XXXIV Abstract #1713, Lunar and Planetary Institute, Houston, (CD ROM).*

Price, R.P.W., Rushmer, T., and A. Olland (2003) Origin of Cretaceous Granitoids in South Island, New Zealand: Testing the Role of Partial Melting of Basaltic Underplate *GSA NE section, v. 35 n. 3, 2-4.*

Price, R.P.W., Rushmer, T., and Baker, D.R. (2004) Generation of Cretaceous Granitoids in Fiordland, New Zealand: Experimentally Testing the Role of Partial Melting of Basaltic Underplate. *NE/SE-GSA*, *v. 36, no. 2* pg. 36.

Ford, R., T. J. McCoy, T. Rushmer, G. K. Benedix, and C. Corrigan (2004) Partial Melting Under Reducing Conditions: How Are Primitive Achondrites Formed? . *Lunar Planetary Science Conference XXXV Abstract #1095, Lunar and Planetary Institute, Houston, (CD ROM).*

Ford, R., Rushmer, T , Benedix, G. ,McCoy, T (2004) Partial Melting of Ordinary Chondrite Under Reducing Conditions, *Eos Trans. AGU, 85 (47) Fall Meet. Suppl. Abstract V41D-02.*

Price, R.P.W. and Rushmer, T. (2005) Orogenic belts, partial melting and strength of the continental lithosphere: Examples from Fiordland, New Zealand:. *Eos. Trans. AGU* 86 (18) Jt. Assembly Suppl., Abs. T07-B.

Getsinger, A. Rushmer, T., Jackson, M. D., Baker, D. (2006) Impact of melt segregation on TTG petrogenesis: An experimental study, *Eos. Trans. AGU* 87 (18) Jt. Assembly Suppl., Abs. V41-A.

PROFESSIONAL SERVICE/ACTIVITIES:

Editorial Services:

Editorial Board *Lithos* for the term 2003-2006

Editorial Board: *Geology* for the term 1999-2001

Cambridge University Press co-editor (with Michael Brown, University of Maryland) "Evolution and Differentiation of the Continental Crust". January 2006 Book Release date

Associate editor for the Journal of Geophysical Research Special Section, "Melt Segregation from Crustal Protoliths: Mechanisms and Consequences" (Journal of Geophysical Research, vol. 100; August 1995).

Synergistic Activities:

Geological Society of America Penrose Committee (Member at Large): 2007-2010.

Geochemical Society: Program Session Chair 2006-2007

MSA Distinguished Lecture Program Committee for term 2006-2008

Best Paper Award committee for Structural Geology and Tectonics division of the Geological Society of America 2004-2007.

Co-convener of Special VPG Session at Fall 2005 AGU "Transient versus Long-Term Strength Changes in the Continental Lithosphere: Freezing and Thawing of the Jelly Sandwich" with R. Butler. December 5-9, 2005.

Co-convener of Special Union Session at Spring 2005 AGU Joint Assembly, "The post-perovskite phase transition: What does it mean for the rest of us?" with K. Hirose, T. Lay, D. Yuen, A. Hoffmiester, N. Petford. May 25-29, 2005.

Co-convener and co-organizer (with Basil Tikoff, Michael Brown, Ben v. d. Pluijm, David Mogk) of an NSF-funded workshop for 80 participants entitled, "*ISES* –Forum II: Rheology. The goal is to promote an integrated and coherent approach to planning the future of Solid Earth Sciences across the sub-disciplines. Held December 12, 2004, AGU San Francisco.

Co-convener of Special Session at Spring 2004 Joint Assembly CGU-AGU-SEG, **"**Influences on Continental Rheology in Zones of Plate Convergence" with Phaedra Upton and Keith Klepeis, co-sponsored by Volcanology, Petrology and Geochemistry and Tectonophysics. May 17-21, 2004.

Co-convener of Special Session at Fall 2003 AGU, "Birth, Growth and Death of Magmatic Arcs: Comparisons among arcs in different settings" with Keith Klepeis and Jon Davidson, co-sponsored by Volcanology, Petrology and Geochemistry and Tectonophysics. Dec. 8-12, 2003.

Co-convener and co-organizer (with Basil Tikoff, Michael Brown, Ben v. d. Pluijm, David Mogk) of an NSF-funded workshop for 82 participants entitled, "ISES – Integrated Solid Earth Science, Forum I. The goal is to promote an integrated and coherent approach to planning the future of Solid Earth Sciences across the sub-disciplines. Held November 1, 2003, GSA Seattle.

Co-convener of Topical Session "High-Pressure/High-Temperature Metamorphism and Crustal Melting in Orogenesis: from Microstructures to Tectonics" (with Michael Brown, Paddy O'Brian, Olivier Vanderhaege) at the first joint assembly AGU-EUG-EGS meeting held in Nice, France April 6-April 11, 2003.

Co-convener and co-organizer (with Basil Tikoff, Michael Brown, Ben v. d. Pluijm, Cathy Manduca) of an NSF-funded workshop for 80 participants entitled," Setting Priorities in Solid-Earth Science". (now ISES) The goal is to promote an integrated and coherent approach to planning the future of Solid Earth Sciences across the sub-disciplines. Held October 26, 2002, GSA Denver; follow-up Town Hall meeting December 9, 2002, AGU.
NSF Report available at: http://dlesecommunity.carleton.edu/earthworkshop02/earthworkshop.pdf

Co-convener of Topical Session "EarthScope Town Hall meeting" (with Basil Tikoff) for the national Geological Society of America 2002 meeting held in Denver, October 27-30, 2002.

Participant: SG & T (Structural Geology and Tectonics division of the Geological Society of America) Workshop entitled "New Departures in Structural Geology and Tectonics". Workshop for 20 participants. White paper produced for NSF in regard to future of funding in this sub-discipline of Solid-Earth Sciences. Held September 22-23, 2002.
NSF White paper available at: http://www.pangea.stanford.edu/~dpollard/NSF/

Participant: MARGINS funded workshop on "The Modeling of Thermal Structure and Dynamics of Subduction Zones" held at the University of Michigan from October 4-6, 2002.

General Chair, 36 Annual Meeting Northeastern Section of the Geological Society of America (hosted by the Department of Geology, University of Vermont) meeting held in Burlington, VT; March 12-14 2001.

Co-convener and co-organizer (with Michael Brown, George Bergantz, Greg Hirth) of Pardee Keynote Symposium "Melt in the Crust and Upper Mantle: How Much, Where, For How Long, and What Significance for Geodynamics?" for National Geological Society of America meeting, October in Boston, 2001.

Panel Member: National Science Foundation (Petrology and Geochemistry) Fall, 2000.

Mineralogical Society of America (MSA) Distinguished Lecturer. 1999-2000. One of two nominated for academic year 1999-2000. 9 lectures are given at different Universities and Colleges across the country to promote mineralogical and petrological studies among undergraduates.

Penrose Conference Convener. *"Processes of crustal differentiation: Crust-mantle interactions, melting and granite migration through the crust"* with co-conveners Michael Brown at the University of Maryland and George Bergantz at the University of Washington. Held July 4-12, 1998 in the Ivrea Zone, northern Italy.

Penrose and Field Forum Convener "*Structural controls on magma transport and vertical coupling in the continental lithosphere*" with Keith Klepeis, Geoff Clark and Andy Tulloch. April 26 to May 6 2003 in Fiordland, New Zealand.

Judge for Best Student Paper Award: American Geophysical Union Fall Annual meeting: 1997, 1998, 1999.

Judge for Best Student Paper Award (Dwornik Award): NASA Lunar Planetary Science Conference 2004.

K-12 Outreach:

Governor's Institute of Vermont: Faculty in an environmental and earth science educational intensive week for accelerated high school students 1995, 1996, 1997.

Summer Science Adventure: Faculty for Shelburne Elementary School's Science week. July 1996.

Invited Lectures (since 1995):

1995: Hutton Symposium, University of Maryland, MD
1995: Renssular Polytechnic Institute, Troy, NY
1995: Middlebury College, VT

1996: Maine University, ME
1996: SUNY Binghamton, NY
1996: University of California at Los Angeles, CA

1997: McGill University, Quebec
1997: Chicoutime, Quebec

1998: GSA National Meeting, Toronto, Canada
1998: SUNY at Albany, NY

1999: University of New Mexico, NM
1999: Virginia Tech, VA
1999: AGU National Spring Meeting, Boston, MA
1999: Brown University, RI

2000: Australian Geological Convention (2 invited talks)
2000: Boston University, MA
2000: University of Massachusetts, MA

2001: Goldschmidt Conference (Invited Keynote lecture)
2001: MBARI, Monterey, CA

2002: Massachusetts Institute of Technology, MA
2002: Smithsonian Museum

2003: Geological Society of America (Invited lecture)

2004: Dartmouth College
2004: Johannesburg, S. Africa, Geoscience Africa (Invited lecture)
2004: University of Montreal, Quebec (UQAM)

2005: University of Queensland, Australia
2005: Deformation, Rheology and Tectonics (DRT 2005) Keynote speaker
2005: Continental Dynamics South Island, New Zealand Workshop, Wellington, New Zealand
2005: VLab 1st Workshop, University of Minnesota
2005: University of South Carolina
2005: University College London, UK
2005: Kingston University, UK

2006: University of Southern California
2006: American Museum of Natural History
2006: Washington University, St. Louis
2006: University of British Columbia
2006: Durham University (2 lectures, one public as Affiliate of the Advanced Studies Institute)

2007: University of California, Riverside
2007: University of California, Berkeley

Specific talks for 1999-2000 MSA Distinguished Lecture tour

1999: University of Saskatchewan, Saskatoon, Canada
1999: University of Calgary, Calgary, Canada
1999: University of British Colombia, Vancouver, Canada
1999: Texas Tech University, TX
1999: Trinity University, TX

1999: University of Memphis, TN
2000: Boston College, MA
2000: University of New Hampshire, NH
2000: University of Maine, ME
2000: State University of Plattsburgh, NY

THESES ADVISEES:

Ph.D. Committees
Frederic Moynier (co-advising Ph.D. student with F. Albarede, Ecole Normale Superieure de Lyon, France): Now at UC Davis Post-doctorate position
Karen Viskupic (Ph.D. committee member, K. Hodges main advisor, MIT). December, 2002.

Masters Theses:
Carey Hengstenberg (completed Fall 2000). *Outcome:* Water Quality Division, State of Vermont
Caleb Holyoke III (completed Fall 2000). *Outcome:* Faculty position, University of Tennessee
Angelo Antignano IV (completed Fall 2002). *Outcome:* UCLA, Ph.D. program
Rena Ford (completed Fall 2004). *Outcome:* U New Mexico, Ph.D. program
Robert Price (completed Fall 2004). *Outcome:* Private industry, California
Amanda Getzinger (currently underway)
Emily Baldwin (currently underway)

Masters Theses Committees
Alexis Richardson (completed Spring 1996)
Jeff Fredericks (completed Fall 1998)
Alex Claypool (completed Spring 2002)
Corey Simonson (completed Fall 2003)
Stephen Marcotte (completed Fall, 2004)
Dan King (completed Fall, 2005)

Undergraduate senior theses:
Erin Taylor (completed Spring 2000). *Outcome:* ENSR International, Boston
Laura Troeger (Spring 2001, recipient of NSF REU Supplement Award)
Adam Olland (Summer 2002, recipient of NSF REU Supplement Award)

SERVICE: Departmental, College and University

- Graduate Student Coordinator, Department of Geology (Fall 1998 – Fall 2004)
- GTF Review Panel for Science and Engineering Fall 2000
- Seminar Series organization for Department of Geology (Fall 1999-2004)
- DEPSCoR, EPSCor review panel, 1996, 1997
- Geography Graduate Program Review committee (Denise Youngblood, Chair) Fall 1998
- SAAWOK planning committee (Judy Van Houton, Chair) Summer 1998
- Search Committee for Structure/Tectonics position Geology Department, Spring 1999
- UCRS Committee, Fall 1999 - Fall 2002
- Dean's Fund Committee, College of Arts and Sciences, 1999 - 2003
- Undeclared Freshman special advisees from Dean's office, Fall 1999 - 2004
- Kidder Scholarship Committee, College of Arts and Sciences, 1999 – 2004

- Search Committee, outside member for College of Civil Engineering, Fall 2002.
- Academic Standing Committee 2005 - 2006

RECENT COLLABORATORS

Prof. F. Albarede, Ecole Normale Superieure de Lyon, France; Prof. D. Baker, McGill University, Montreal, Canada; Dr. G. Benedix, Washington University, St. Louis, MI; Prof. A. J. Brearley, University of New Mexico, NM; Prof. M. Brown, University of Maryland, MD; Prof. G. Clarke, University of Sydney, Australia; Dr. G. Gaetani, WHOI, Woods Hole, MA; Prof. M. Humayun, Florida State Unviersity FLA.; Dr. J. Jones, NASA Career Scientist, Johnson Space Center, Houston, TX; Prof. K. Klepeis, University of Vermont, VT; Dr. T. McCoy, Smithsonian Institute, Wash DC., Prof. N. Petford, Bournemouth University, Prof. D. Yuen, University of Minnesota