

## Curriculum Vitae – Thomas J. Lapen

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### **Education:**

- **Central Washington University, Ellensburg WA**                      **BS Geology**    **1995**  
**Senior thesis:** *Geology of the Selah Butte Anticline and Vicinity, Yakima Fold Belt, Central Washington*  
**Advisor:** Robert Bentley, Retired
- **Western Washington University, Bellingham WA**                      **MS Geology**    **1998**  
**MS Thesis:** *Structure and Metamorphism of the Southern Lillooet River-Northern Breakenridge Area, Southern Coast Mountains, British Columbia, Canada*  
**Advisor:** Edwin H. Brown, Retired
- **University of Wisconsin-Madison, Madison WI**                      **PhD Geology**    **2005**  
**PhD Dissertation:** *Radiogenic Isotopes as Records of Tectonic and Metamorphic Processes: Examples from the Western Alps, Italy, and the Western Gneiss Region, Norway.*  
**Advisor:** Clark M. Johnson

### **Appointments:**

- 9/11-present Associate Professor, EAS Department, University of Houston, TX
- 8/05-8/11 Assistant Professor, EAS Department, University of Houston, TX
- 8/01-7/05 Research Assistant, University of Wisconsin-Madison, Madison, WI
- 7/98-7/00 Geologist, WA State Div. Geology and Earth Resources, Olympia WA
- 4/95-8/95 Geologist, Kittitas Co. Reclamation District, Ellensburg, WA

### **Awards:**

- Recipient of the John C. Butler Excellence in Teaching Award; UH (2008)
- Morgridge Distinguished Graduate Fellowship; UW-Madison (2004-2005 academic year)
- Best Graduate Research Paper Award; Dept. Geology and Geophysics, UW-Madison (2004)
- Farrell Merit Undergraduate Research Scholarship; Central Washington University (1994-1995)

### **Peer-reviewed Papers (up until 05/2015):**

#### **In Review/In Revision**

- Gao Y, Andreasen R, Casey JF, Yang W, **Lapen TJ**, *In Review*, Accurate and Precise Determination of the Vanadium Isotopic Composition of Crude Oil. **Chemical Geology**.
- Ul-Hadi S, Khan S, **Lapen TJ**, Dietsch C, Khan AS, *In Review*, Geochemistry and geochronology of a part of the pre- to syn-collisional Chagai-Ras Koh island arc system along the western Indo-Asian plate boundary. **Lithos**.
- McLeod C, Brandon AD, Fernandes, VA, Peslier AH, Shafer J, **Lapen TJ**, Butcher A, Irving A, *In revision*, Constraints on Formation and Evolution of the Lunar Crust from Feldspathic Granulitic Breccias NWA 3163 and 4881. **Geochim. Cosmochim. Acta.**, 159, 264-284.
- Kent J.J., Brandon A.D., Joy K.H., **Lapen T.J.**, Peslier A.H., Irving A.J., Coleff D.M., *In revision*, The origin and composition of Lunar granulite Northwest Africa 5744. **Meteoritics and Planetary Science**.

**Published/In Press**

- Fernandez A, **Lapen TJ**, Andreasen R, Swart PK, White CD, Rosenheim BE, 2015, Ventilation time scales of the North Atlantic subtropical cell revealed by coral radiocarbon from the Cape Verde Islands, **Paleoceanography**, 30, doi:10.1002/2015PA002790.
- Armytage RMG, Brandon AD, Andreasen R, **Lapen TJ**, 2015, Evolution of Mojavian mantle lithosphere influenced by Farallon plate subduction: evidence from Hf and Nd isotopes in peridotite xenoliths from Dish Hill, CA. **Geochimica et Cosmochimica Acta.**, 159, 264-284.
- Skora S, Mahlen NJ, Johnson CM, Baumgartner L, **Lapen TJ**, Beard BL, Szilvagyí ET, 2015, Evidence for protracted prograde metamorphism followed by rapid exhumation of the Zermatt-Saas Fee Ophiolite. **Journal of Metamorphic Geology**, doi:10.1111/jmg.12148
- Armytage, R. M. G., Brandon, A. D., Peslier, A. H., **Lapen, T. J.**, 2014. Osmium isotope evidence for Early to Middle Proterozoic lithosphere stabilization and concomitant production of juvenile crust in Dish hill, CA peridotite xenoliths. **Geochim. Cosmochim. Acta** 137, 113-133.
- Joy, K.H., Nemchin, A., Grange, M., **Lapen, T.J.**, Peslier, A.H., Ross, D.K., Zolensky, M.E., Kring, D.A., 2014, Petrography, geochronology and source terrain characteristics of lunar meteorites Dhofar 925, 961 and Sayh al Uhaymir 449, **Geochimica et Cosmochimica Acta**, doi:[10.1016/j.gca.2014.08.013](https://doi.org/10.1016/j.gca.2014.08.013)
- Wittmann A., Korotev R.L., Jolliff B.L., **Lapen T.J.**, Irving A.J., 2014, The petrogenesis of impact basin melt rocks in lunar meteorite Shişr 161. **American Mineralogist**, 99. 1626-1647, doi: 10.2138/am.2014.4837
- McClelland W.C., **Lapen T.J.**, 2013, Linking time to the pressure-temperature path for ultrahigh-pressure rocks. **Elements**, 9, 273-279.
- Tomlinson D.W., Copeland P., Murphy M.A., **Lapen T.J.**, 2013, Oligocene shortening in the Little Burro Mountains of southwest New Mexico. **Rocky Mountain Geology**, v. 48, 169–183.
- Beard B.L., Ludois J.M., **Lapen T.J.**, Johnson C.M., 2013, Pre-4.0 billion year weathering on Mars constrained by Rb-Sr geochronology on meteorite ALH 84001. **Earth and Planetary Science Letters**. 361, 173-182.
- Sanchez VI, Murphy MA, Robinson AC, **Lapen TJ**, Heizler MT, 2013, Tectonic evolution of the India-Asia suture zone since Middle Eocene time, Lopukangri area, south-central Tibet. **Journal of Asian Earth Sciences**. V. 62, 205-220. doi:10.1016/j.jseaes.2012.09.004
- Ahmad I, Khan S, **Lapen TJ**, Burke K, 2013, Isotopic ages for alkaline igneous rocks, including a 26 Ma ignimbrite, from the Peshawar Plain of northern Pakistan and their tectonic implications. **Journal of Asian Earth Sciences**. V. 62, 414-424. doi:/10.1016/j.jseaes.2012.10.025
- Shaulis B.J., **Lapen T.J.**, Casey J.F., Reid D.R., 2012, Timing and rates of flysch sedimentation in the Stanley Group, Ouachita Mountains, Oklahoma and Arkansas, U.S.A.: Constraints from U-Pb zircon ages of subaqueous ash-flow tuffs. **Journal of Sedimentary Research – Current Ripples**. v. 82, 833-840. doi:10.2110/jsr.2012.68
- van Acken D., Brandon A.D., **Lapen T.J.**, 2012, Highly siderophile element and osmium isotope evidence for post-core formation magmatic and impact processes on the aubrite parent body. **Meteoritics and Planetary Science**. V. 47, 1606-1623. doi:10.1111/j.1945-5100.2012.01425.x
- Peslier A.H., Woodland A.B., Bell D.R., Lazarov M., **Lapen T.J.**, 2012, Metasomatic control of water contents in the Kaapvaal cratonic mantle. **Geochimica et Cosmochimica Acta**. 97, 213-246. doi:10.1016/j.gca.2012.08.028
- Robinson AC, Ducea M, **Lapen TJ**, 2012, Detrital Zircon and Isotopic Constraints on the Crustal Architecture and Tectonic Evolution of the Northeastern Pamir. **Tectonics**, V 31, doi:10.1029/2011TC003013
- Zhu Y, Bhattacharya JP, Li W, **Lapen TJ**, Jicha BR, Singer BS, 2012, Milankovitch-Scale Sequence Stratigraphy and Stepped Forced Regressions of the Turonian Ferron Notom Deltaic Complex, South-Central Utah, U.S.A **Journal of Sedimentary Research**, v. 82, 723-746.

- Copeland P., Murphy M.A., Dupre W.R., **Lapen T.J.**, 2011, Oligocene deformation in southern New Mexico and its implications for Farallon plate geodynamics. **Geosphere**, 7, 1209-1219; doi: 10.1130/GES00672.1.
- Hui, H., Peslier, A.H., **Lapen, T.J.**, Shafer, J.T., Brandon, A.D., Irving, A.J., 2011, Petrogenesis of basaltic shergottite Northwest Africa 5298: Closed system crystallization of an oxidized mafic melt. **Meteoritics and Planetary Science**, 46, 1313-1328; doi: 10.1111/j.1945-5100.2011.01231.x.
- Zhang R, Murphy MA, **Lapen TJ**, Sanchez V, Heizler M, 2011, Late Eocene crustal thickening followed by Early-Late Oligocene Extension along the India-Asia suture zone: Evidence for cyclicity in the Tibet-Himalayan orogen. **Geosphere**, 7, 1249-1268; doi: 10.1130/GES00643.1.
- Shaulis, B., **Lapen, T.J.**, Toms, A., 2010, Signal linearity of an extended range pulse counting detector: Applications to accurate and precise U - Pb dating of zircon by laser ablation quadrupole ICP - MS, **Geochem. Geophys. Geosyst.**, 11, Q0AA11, doi:10.1029/2010GC003198.
- Shafer, J.T., Brandon, A.D., **Lapen, T.J.**, Righter, M., Peslier, A.H., Beard, B.L., 2010, Trace element systematics and  $^{147}\text{Sm}$ - $^{143}\text{Nd}$  and  $^{176}\text{Lu}$ - $^{176}\text{Hf}$  ages of Larkman Nunatak 06319: Closed-system fractional crystallization of an enriched shergottite magma, **Geochimica et Cosmochimica Acta**, 74, 7307-7328, DOI: 10.1016/j.gca.2010.09.009.
- Peslier A.H., Hnatyshin D., Herd, C.D.K., Walton E.L., Brandon A.D., **Lapen T.J.**, Shafer J.T., 2010, Crystallization, melt inclusion, and redox history of a new Martian meteorite: olivine phyric shergottite LAR 06319. **Geochimica et Cosmochimica Acta**. 74:4543-4576.
- **Lapen T.J.**, Righter M., Brandon A.D., Debaille V., Beard B.L., Shafer J.T., and Peslier A.H., 2010, A younger age for ALH 84001 and its geochemical link to shergottite sources in Mars. **Science**, 328, 347 – 351. doi: 10.1126/science.1185395
- Skora, S, **Lapen, TJ**, Baumgartner, LP, Johnson, CM, Hellenbrand, E, and Mahlen, NJ., 2009, The duration of prograde garnet crystallization in the UHP eclogites at Lago di Cignana, Italy. **Earth Planet. Sci. Lett.** 287:402-411.
- Brandon, AD, **Lapen, TJ**, Debaille, V, Beard, BL, Rankenburg, K, and Neal, C., 2009, Re-evaluating  $^{142}\text{Nd}/^{144}\text{Nd}$  in Lunar Mare basalts with implications for the early evolution and bulk Sm/Nd of the Moon. **Geochim. Cosmochim. Acta** 73:6421-6445.
- **Lapen, T.J. (Invited)**, Medaris, L.G.Jr., Beard, B.L., Johnson, C.M., 2009, The Sandvik peridotite, Gurskøy, Norway: Three billion years of mantle evolution in the Baltica lithosphere. **Lithos**, doi:10.1016/j.lithos.2008.08.007.
- Skora, S., Baumgartner, L.P., Mahlen, N.J., **Lapen, T.J.**, Bussy, F., 2008, Estimation of a maximum Lu diffusion rate in a natural eclogite garnet. **Swiss Journal of Geosciences**, DOI: 10.1007/s00015-008-1268-y.
- Chafetz, H.S., Wu, Z., **Lapen, T.J.**, Milliken, K.L., 2008, Geochemistry of preserved Permian aragonitic cements in the tepees of the Guadalupe Mountains, West Texas and New Mexico, U.S.A.; **Journal Sedimentary Research**, 78, 187-198
- Mahlen, N.J., Beard, B.L., Johnson, C.M., **Lapen, T.J.**, 2008, An investigation of dissolution methods for Lu-Hf and Sm-Nd isotope studies in zircon and garnet bearing whole rock samples. **Geochemistry, Geophysics, and Geosystems (G3)** 9, Q01002, doi:10.1029/2007GC001605
- Copeland, P., Watson, E.B., Urizar, S.C., Patterson, D., **Lapen, T.J.**, 2007, Alpha thermochronology of carbonates I: Experimental data, **Geochimica et Cosmochimica Acta**, 71, 4488-4511.
- Kylander-Clark, A.R.C., Hacker, B.R., Johnson, C.M., Beard, B.L., Mahlen, N.J., **Lapen, T.J.**, 2007, Coupled Lu-Hf and Sm-Nd geochronology constrains prograde and exhumation histories of high- and ultrahigh-pressure eclogites from western Norway. **Chemical Geology**, 242:137-154.
- **Lapen, T.J.**, Johnson, C.M., Baumgartner, L.P., Dal Piaz, G.V., Skora, S., Beard, B.L., 2007, Coupling of oceanic and continental crust during Eocene eclogite facies metamorphism:

Evidence from the Monte Rosa nappe, Western Alps, Italy. **Contributions to Mineralogy Petrology**, 153:139-157.

- **Lapen, T.J.**, Medaris, L.G. Jr, Johnson, C.M., and Beard, B.L., 2005, Archean to Middle Proterozoic evolution of Baltica subcontinental lithosphere: evidence from combined Sm- Nd and Lu-Hf isotope analyses of the Sandvik ultramafic body, Norway. **Contributions to Mineralogy Petrology** 150:131-145.
- Brown, E.H., **Lapen, T.J.**, Leckie, M.R., Silva, P.I., Verga, D., Singer, B.S., 2005, Revised ages of blueschist metamorphism and the youngest pre-thrusting rocks in the San Juan Islands, Washington. **Canadian Journal of Earth Sciences**, 42:1389-1400.
- Jicha, B.R., Singer, B., Brophy, J.G., Fournelle, J.H., Johnson, C.M., Beard, B.L., **Lapen, T.J.**, and Mahlen, N.J., 2004, Variable impact of the subducted slab on Aleutian island arc magma sources: evidence from Sr, Nd, Pb, and Hf isotopes and trace element abundances. **Jour. Petrol.** 45:1845-1875.
- **Lapen, T.J.**, Mahlen, N.J., Johnson, C.M., Beard, B.L., 2004, High precision Lu and Hf isotope analyses of both spiked and unspiked samples: A new approach, **Geochem Geophys Geosyst**, 5, Q01010, doi: 10.1029/2003GC000582
- **Lapen, T.J.**, Johnson, C.M., Baumgartner, L.P., Mahlen, N.J., Beard, B.L., Amato, J.M., 2003, Burial rates during prograde metamorphism of an ultra-high pressure terrane: an example from Lago di Cignana, Western Alps, Italy, **Earth Planet Sci Lett**, 215, 57-72.
- Brown, E.H., Talbot, J.L., McClelland, W.C., Feltman, J.A., **Lapen, T.J.**, Bennett, J.D., Hettinga, M.A., Troost, M.L., Alvarez, K.M., Calvert, A.T., 2000, Interplay of plutonism and regional deformation in an obliquely convergent arc, southern Coast Belt, British Columbia: **Tectonics**, vol. 19, no. 3, p. 493-511.

### ***Peer-reviewed Geologic Maps and other reports:***

- **Lapen T.J.**, Cuthbert, S., Dobrzhinetskaya, L., 2008, International Eclogite Field Symposium and Workshop of the Task Force IV, International Lithosphere Program; **Episodes**, v. 31, 1-3.
- Dragovich, J.D., Logan, R.L., Schasse, H.W., Walsh, T.J., Lingley, W.S. Jr., Norman, D.K., Gerstel, W.J., **Lapen, T.J.**, Schuster, J.E., and Meyers, K.D., 2002, Geologic map of Washington. Northwest quadrant: **Washington Division of Geology and Earth Resources** Geologic Map GM-50, 72 p., 3 pl., scale 1:250,000.
- Loen, J.S., Lingley, W.S., Jr., Anderson, Garth, **Lapen, T.J.**, 2001, Reconnaissance investigation of sand, gravel, and quarried bedrock resources in the Bellingham 1:100,000 quadrangle, Washington: **Washington Division of Geology and Earth Resources** Information Circular 91, 45 p., 1 plate.
- **Lapen, T.J.**, 2000, Geologic map of the Bellingham 1:100,000-scale quadrangle, Washington: **Washington Division of Geology and Earth Resources** Open-File-Report 00-5, 35 p., 2 plates.
- Dragovich, J.D., Norman, D.K., **Lapen, T.J.**, Anderson, G., 1999, Geologic map of the Sedro-Woolley North and Lyman 7.5-minute quadrangles, western Skagit County, Washington: **Washington Division of Geology and Earth Resources** Open-File-Report 99-3, 37 p., 4 plates.

### ***Conference Abstracts Since 2005 (asterisk denotes extended abstracts):***

- \*Sarafian AR, Nielsen SG, Berger EL, Gaetani GA, Hauri EH, Messenger SM, Righter K, **Lapen T.J.**, Sarafian E, Monteleone BD, Marschall HR (2015) Wet Angrites? A D/H and Pb-Pb study of silicates and phosphates. 46th Lunar and Planetary Science Conference, Abstract [1542].
- \*Righter M. Andreasen R. **Lapen T. J.** (2015) Lu-Hf and Sm-Nd Systematics of Martian Meteorites Larkman Nunatak 12011 and 12095. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2889].

- \*Andreasen R. **Lapen T. J.** Righter M. Irving A. J. (2015) Constraints on the Isotopic Composition of the Shergottite Mantle Sources — From Observation Based on the Expanding Rock Record. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2976].
- \***Lapen T. J.** Righter M. Andreasen R. (2015) Lu-Hf and Sm-Nd Isotope Systematics of Non-Cumulate Eucrites. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2863].
- \*Kerekgyarto A. G. Jeffcoat C. R. **Lapen T. J.** Andreasen R. Righter M. (2015) Supra-Canonical Initial 26Al/27Al from a Reprocessed Allende CAI. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2918].
- \*Tait K. T. Irving A. J. Nicklin R. I. Day J. M. D. Andreasen R. **Lapen TJ.** (2015) Petrologic and Isotopic Characterization of Enriched Mafic Shergottite Northwest Africa 8679. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2709].
- \*Izawa M. R. M. Tait K. T. Moser D. E. Barker I. R. Hyde B. C. **Lapen TJ** (2015) Mineralogy, Petrology and Geochronology of Intermediate Shergottite NWA 7042. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2523].
- \*Andreasen R. **Lapen T. J.** (2015) Mass-Dependent Neodymium Isotopic Variations in Planetary Materials — Determined Using a Neodymium Double Spike. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2847].
- \*Rapp J. F. **Lapen T. J.** Draper D. S. (2015) REE Partitioning in Lunar Materials. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2878].
- \*Irving A. J. Kuehner S. M. Andreasen R. Lapen T. J. Chennaoui-Aoudjehane H. (2015) Petrologic and Radiogenic Isotopic Assessment of Olivine-Phyric, Diabasic and Microgabbroic Shergottites from Northwest Africa. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2290].
- \*Jeffcoat C. R. Kerekgyarto A. G. **Lapen T. J.** Andreasen R. Righter M. (2015) Mineralogy and Petrology of EK-459-5-1, a Type B1 CAI from Allende. 46<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2610]
- **Lapen TJ** (2014) Garnet chronology in metamorphic systems. International Mineralogical Association meeting.
- Bradley D, Sisson VB, **Lapen TJ** (2014) Processes governing garnet growth during prograde metamorphism of lawsonite eclogite from south of the Motagua Fault Zone, Guatemala. International Mineralogical Association meeting.
- \*Righter M. Andreasen R. **Lapen T. J.** Irving A. J. (2014) The Age and Source Composition for Depleted Shergottite Northwest Africa 7635: A 2.3 Ga Magmatic Rock from Early Amazonian Mars. 45<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2550].
- \*Andreasen R. Righter M. **Lapen T. J.** Irving A. J. Nishiizumi K. (2014) Lead-Lead Isotope Systematics and Terrestrial and Ejection Ages of Early Amazonian Depleted Shergottite Northwest Africa 7635. 45<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2865].
- \*Jeffcoat C. R. Kerekgyarto A. **Lapen T. J.** Andreasen R. Righter M. (2014) In Situ Trace Element Analysis of an Allende Type B1 CAI: EK-459-5-1. 45<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2523].
- \*Kerekgyarto A. G. Jeffcoat C. R. Lapen T. J. Andreasen R. Righter M. (2014) Stable Magnesium Isotope Variation in Melilite Mantle of Allende Type B1 CAI EK 459-5-1. 45<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2874].
- \*Beard S. P. Kring D. A. Isachsen C. E. **Lapen T. J.** Zolensky M. E. (2014) Ar-Ar Analysis of Chelyabinsk: Evidence for a Recent Impact. 45<sup>th</sup> Lunar and Planetary Science Conference, abstract [#1807].
- \***Lapen T. J.** Kring D. A. Zolensky M. E. Andreasen R. Righter M. (2014) Uranium-Lead Isotope Evidence in the Chelyabinsk LL5 Chondrite Meteorite for Ancient and Recent Thermal Events. 45<sup>th</sup> Lunar and Planetary Science Conference, abstract [#2561].
- \*Righter M., **Lapen, TJ,** Andreasen R, 2013, Evidence for excess 176Hf in Eucrite QUE97053. 44<sup>th</sup> Lunar and Planetary Science Conference. [#2745]

- \*Andreasen, R, **Lapen TJ**, 2013, The absolute neodymium isotope composition of standard materials – Implications for accurate and precise  $^{142}\text{Nd}$  measurements and chronology. 44<sup>th</sup> Lunar and Planetary Science Conference. [#2918]
- \*Grosshans, T, **Lapen TJ**, Andreasen R, Irving AJ, 2013, Lu-Hf and Sm-Nd ages and source compositions for depleted shergottite Tissint. 44<sup>th</sup> Lunar and Planetary Science Conference. [#2872]
- \***Lapen TJ**, Andreasen R, Righter M, Irving AJ, 2013, Lu-Hf age and isotope systematics of intermediate permafic olivine phyric shergottite NWA 2990: Implications for the diversity of shergottite sources. 44<sup>th</sup> Lunar and Planetary Science Conference. [#2686]
- \*Dietderich JE, **Lapen TJ**, Andreasen R, Righter M, 2013, Isotope systematics of the type-7 eucrite Jonzac: A look into the history of the eucrite parent body using the Lu-Hf, Pb-Pb, and U-Pb isotope systems. 44<sup>th</sup> Lunar and Planetary Science Conference. [#2879]
- \*Andreasen R, Simmons ST, Righter M, **Lapen TJ**, 2013, Lu-Hf and Sm-Nd systematics of Apollo 17 sample 78236: Age and the importance of thermal neutron fluence on the Lu-Hf system. 44<sup>th</sup> Lunar and Planetary Science Conference. [#2887]
- \*McLeod CL, Brandon AD, **Lapen TJ**, Shafer JT, Peslier AH, Irving AJ, 2013, The petrology and geochemistry of feldspathic granulitic breccia NWA 3160: Implications for the Lunar crust. 44<sup>th</sup> Lunar and Planetary Science Conference. [#2003]
- \*Shaulis BJ, Righter M, **Lapen TJ**, Irving AJ, 2013, 3.1 Ga crystallization age of Mg and Fe gabbro lithologies in Lunar meteorites NWA 773, 3170, 6950, and 7007 and evidence for 3.95 Ga components in NWA 773 polymict breccia. 44<sup>th</sup> Lunar and Planetary Science Conference. [#1781]
- \*Shaulis BJ, Righter M, **Lapen TJ**, Korotev RL, Irving AJ, Kuehner SM, 2012, Baddeleyite Chronology of Northwest Africa 6950: A 3.1 Ga Lunar Olivine Gabbro Paired with NWA 2977 and the Cumulate Mare Gabbro Lithology in NWA 773. 43<sup>rd</sup> Lunar and Planetary Science Conference. [#2236]
- \*Righter M, Shaulis BJ, **Lapen TJ**, 2012, U-Pb and  $^{207}\text{Pb}$ - $^{206}\text{Pb}$  Age of Zircons from Polymict Eucrites and Howardites. 43<sup>rd</sup> Lunar and Planetary Science Conference. [#2562]
- \*Kent JJ, Brandon AD, **Lapen TJ**, Peslier AH, Irving AJ, Coleff DM, 2012, In Situ Chemical Characterization of Mineral Phases in Lunar Granulite Meteorite Northwest Africa 5744. 43<sup>rd</sup> Lunar and Planetary Science Conference. [#2559]
- \*Simmons ST, **Lapen TJ**, 2012, Trace Element Geochemistry of Apollo Sample 78236: Possible Connections with Other Mg-Suite Norites. 43<sup>rd</sup> Lunar and Planetary Science Conference. [#2622]
- \*Irving AJ, Kuehner SM, Tanaka R, Herd CDK, Chen G, **Lapen TJ**, 2012, The Tissint Depleted Permafic Olivine-Phyric Shergottite: Petrologic, Elemental and Isotopic Characterization of a Recent Fall in Morocco. 43<sup>rd</sup> Lunar and Planetary Science Conference. [#2510]
- \*Irving AJ, Kuehner SM, Chen G, Herd CDK, Tanaka R, **Lapen TJ**, 2012, Petrologic, Elemental and Isotopic Characterization of Two Unusual Martian Meteorites: Depleted Permafic Microgabbroic Shergottite Northwest Africa 7032 and Intermediate Permafic Intersertal Shergottite Northwest Africa 7042. 43<sup>rd</sup> Lunar and Planetary Science Conference. [#2496]
- Righter M, Shaulis B, and **Lapen TJ**, 2011, U-Pb and  $^{207}\text{Pb}$ - $^{206}\text{Pb}$  ages of zircons from polymict eucrites and howardites. 34<sup>th</sup> Symposium on Antarctic Meteorites, National Institute of Polar Research, Tokyo Japan.
- Robinson AC, **Lapen TJ**, 2011, Detrital zircon constraints on the crustal architecture of the eastern Pamir: Similarities and differences with the Tibetan Plateau. 2011 Fall AGU Meeting, T51J-08
- Shaulis BJ, **Lapen TJ**, Casey JF, Reid D, 2011, New constraints on the age and depositional rates of initial flysch sedimentation in the Stanley Group, Ouachita Mountains, Oklahoma and Arkansas. 2011 Fall AGU Meeting, T13F-2479
- \*Righter M, **Lapen TJ**, Shaulis B, 2011, U-Pb and  $^{207}\text{Pb}$ - $^{206}\text{Pb}$  ages of zircon from basaltic eucrites. 42<sup>nd</sup> Lunar and Planetary Science Conference. (#2740)

- \*Wittmann A, **Lapen TJ**, Swindle TD, Kring DA, 2011, Petrography and provenance of impact melt and granulite particles from the ancient regolith breccias 60016, 61135, and 66035. 42<sup>nd</sup> Lunar and Planetary Science Conference. (#2289)
- \*Vaughan WM, Wittmann A, Joy KH, **Lapen TJ**, Kring DA, 2011, Provenance of impact melt and granulite clasts in lunar meteorite PCA 02007. 42<sup>nd</sup> Lunar and Planetary Science Conference. (#1247)
- \*Shafer JT, Brandon AD, **Lapen TJ**, Peslier AH, Irving AJ, 2011, Trace element geochemistry of a lunar granulite: Evidence from Northwest Africa 3163. 42<sup>nd</sup> Lunar and Planetary Science Conference. (#1508)
- \*Kuehner SM, Irving AJ, Herd CDK, Gellissen M, **Lapen TJ**, Rumble D III, 2011, Pristine olivine-phyric shergottite Northwest Africa 6162: A primitive magma with accumulated crystals derived from depleted martian mantle. 42<sup>nd</sup> Lunar and Planetary Science Conference. (#1610)
- \*Irving AJ, Bunch TE, Kuehner SM, Herd CDK, Gellissen M, **Lapen TJ**, Rumble D III, Pitt D, 2011, Petrologic, elemental and isotopic characterization of shock-melted enriched ultramafic poikilitic shergottite Northwest Africa 6342. 42<sup>nd</sup> Lunar and Planetary Science Conference. (#1612)
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- \*Righter M. **Lapen T. J.**, 2010, Petrology, Mineralogy and Mineral Chemistry of Antarctic Monomict Eucrites CMS 04049 and QUE 97053 [#2629] 41<sup>st</sup> Lunar and Planetary Science Conference.
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- \***Lapen T. J.**, Brandon A. D., Righter M., Shafer J., Irving A. J., 2010, A Hybridized Martian Mantle Source for Shergottites [#2448] 41<sup>st</sup> Lunar and Planetary Science Conference.
- \*Peslier A. H., Hnatyshin D., Herd C. D. K., Walton E. L., Brandon A. D., **Lapen T. J.**, Shafer J., 2010, A More Reduced Mantle Source for Enriched Shergottites; Insights from Olivine-Phyric Shergottite LAR 06319 [#1503] 41<sup>st</sup> Lunar and Planetary Science Conference.
- \*Shafer J. T., Brandon A. D., **Lapen T. J.**, Righter M., Peslier A. H., 2010, Sm-Nd Age and REE Systematics of Larkman Nunatak 06319: Closed System Fractional Crystallization of a Shergottite Magma [#1726] 41<sup>st</sup> Lunar and Planetary Science Conference.

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- \*Righter, M., **Lapen, T.J.**, Brandon, A.D., Beard, B.L., Shafer, J.T., Peslier A.H., 2009, Lu-Hf age and isotope systematics of ALHA 84001. 40<sup>th</sup> Lunar and Planetary Science Conference.
- \*Shafer, J.T., Brandon, A.D., **Lapen, T.J.**, Righter, M., Beard, B.L., Peslier, A.H., 2009, Lu-Hf age of Martian meteorite Larkman Nunatak 06319. 40<sup>th</sup> Lunar and Planetary Science Conference.
- \*Hui, H., Peslier, A.H., **Lapen, T.J.**, Brandon, A.D., Shafer, J.T., 2009, Northwest Africa 5298: A basaltic shergottite. 40<sup>th</sup> Lunar and Planetary Science Conference.
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- \***Lapen T.J.**, Brandon A.D., Beard B. L., Peslier A.H., Lee C.-T. A., Dalton H. A., 2008, Lu-Hf Age and Isotope Systematics of the Olivine-Pheric Shergottite RBT04262 and Implications for the Sources of Enriched Shergottites. 39<sup>th</sup> Lunar and Planetary Science Conference.
- \*Dalton H. A., Peslier A.H., Brandon A.D., Lee C.-T. A., **Lapen T.J.**, 2008, Petrology and Mineral chemistry of New Olivine-Pheric Shergottite RBT04262. 39<sup>th</sup> Lunar and Planetary Science Conference.
- \*Righter, M., **Lapen, T.J.**, Righter, K., 2008, Relationships between HED's, mesosiderites, and ungrouped achondrites: Trace element analysis of mesosiderite RKPA 79015 and ungrouped achondrite QUE 93148. 39<sup>th</sup> Lunar and Planetary Science Conference.
- **Lapen TJ**, Johnson CM, Beard, BL, 2007, Lu-Hf age and isotope systematics of the Dora Maira nappe, western Alps, Goldschmidt conference, Cologne, Germany
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- \***Lapen TJ**, Medaris L Jr., Brandon AD, Johnson CM & Beard BL, 2007, The Sandvik peridotite, Gurskoy , Norway : three billion years of mantle evolution in the Baltica lithosphere. International Eclogite Field Symposium, Portree, Scotland.
- **Lapen T.**, Johnson, C., Baumgartner, L., Skora, S., Mahlen, N., Beard, B., 2006, Coupling of Oceanic and Continental Crust During Eocene Eclogite-Facies Metamorphism: Evidence From the Monte Rosa Nappe, Western Alps, Italy, *Eos Trans. AGU*, 87(52)
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- **Lapen, TJ**, Johnson, CM, Baumgartner, LP, Beard, BL, 2005,  $^{238}\text{U}$ - $^{206}\text{Pb}$  geochronology of eclogite-facies metamorphism, Monte Rosa massif, Western Alps, Italy. Goldschmidt meeting, Moscow, ID.
- **Lapen, TJ**, Medaris, LG Jr, Johnson, CM, Beard, BL, 2005, Archean to Middle Proterozoic evolution of the Sandvik ultramafic body, Norway: Evidence from Sm-Nd and Lu-Hf isotope analyses. Goldschmidt meeting, Moscow, ID.
- Kylander-Clark, A, Hacker, B, Johnson, C, Beard, B, Mahlen, N, **Lapen, T**, 2005, Lu/Hf and Sm/Nd ages of eclogite-facies metamorphism in the Western Gneiss Region, Norway. Geol. Soc. Amer. Ann. meeting.
- Mahlen, N., Beard, B., Johnson, C., **Lapen, T.**, 2005, The Importance of Complete Sample Dissolution and Spike-Sample Equilibration on Lu-Hf Isotope Studies, Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract V41D-1479.
- Mahlen, N., Skora, S., Johnson, C., Baumgartner, L.P., **Lapen, T.**, Beard, B., and Pilet, S., 2005, Lu-Hf geochronology of eclogites from Pfulwe, Zermatt-Saas ophiolite, western Alps, Switzerland. Supplement to Geochimica et Cosmochimica Acta 69/10, 305.

### ***Funded Grant Proposals (since 8/2005):***

- **NASA Earth and Space Science Fellowship: \$30,000/year.** In situ investigations of Al-Mg isotopes in Type B1 CAIs. **Student: Andrew Kerekgyarto, Institutional PI: Thomas Lapen.** 9/1/2015 – 8/31/2016 (Years 2 and 3 funded with adequate progress)
- **American Chemical Society – Petroleum Research Fund (ACS-PRF) PRF# 55770-ND2 - \$110,000:** Uranium-Thorium-Lead Chronology of Source Rock Deposition and Diagenesis: an in Situ and Whole Rock Study of TOC-Rich Shales. **PI: Thomas Lapen.** 6/1/2015 – 5/31/2017
- **NASA – Solar System Exploration Research Virtual Institute (SSERVI) - \$185,177. PI: David Kring (LPI), UH PI: Thomas Lapen.** 4/1/2014 – 3/30/2019
- **NASA Cosmochemistry (11-COS11-0080) – \$60,000:** Age and Lu-Hf isotope investigations of eucrite and angrite meteorites: Constraints on excess  $^{176}\text{Hf}$  in early solar system materials. **PI: Thomas Lapen.** 8/1/2012 - 12/31/2013
- **Shell Oil Company - \$54,105:** Provenance Systematics of Middle Cretaceous Sandstones, Western Canada Sedimentary Basin, Alberta, Canada. **PI: Janok Bhattacharya, Co-PI: Thomas Lapen.** 01/31/2012 – 01/30/2015
- **NASA Mars Fundamental Research (10-MFRP10-0101) - \$222,452:** Coupled Lu-Hf and Sm-Nd isotopic studies of Martian meteorites: constraints on crystallization ages and source compositions. **PI: Thomas Lapen, Co-PI: Rasmus Andreasen.** 3/23/2011 – 10/1/2014.
- **NSF Petrology and Geochemistry (NSF EAR 1048583) - \$338,147:** Testing Models for Continental Growth and Melt-Rock Interaction from 186Os-187Os-Hf-Nd-Sr Isotopes in SW USA Mantle Xenoliths. **PI: Alan Brandon, Co-PI: Thomas Lapen.** 2/15/2011 – 2/14/2012.
- **NSF Instrumentation and Facilities (NSF EAR 0947220) - \$181,578:** Acquisition of a Thermal Ionization Mass Spectrometer. **PI: Alan Brandon, Co-PI: Thomas Lapen.** 2/15/2011 – 2/14/2014
- **NASA Planetary Major Equipment (09-COS09-0040) - \$181,578:** Acquisition of a Thermal Ionization Mass Spectrometer. **PI: Alan Brandon, Co-PI: Thomas Lapen.** 2/15/2011 – 2/14/2014
- **NASA Cosmochemistry (08-COS08-0064) - \$426,000:** Test of Hf isotope heterogeneity in the early solar system. **PI: Thomas Lapen.** 11/1/2008 – 10/31/2011
- **State of Texas Advanced Research Program (003652-0140-2007-12) - \$125,000:** U-Pb age and Hf isotope composition of detrital zircons, Ouachita Orogenic Belt, Marathon Uplift, Texas. **PI: Thomas Lapen.** 8/1/2008 – 7/31/2011

- **NSF Instrumentation and Facilities (NSF EAR 0824967) - \$269,658:** Acquisition of a multiple-collector inductively-coupled plasma mass spectrometer. **PI – Thomas Lapen, Co-PIs John Casey, Jonathan Snow, Michael Murphy.** 11/2008 – 11/2009 (1 year extension)
- **NASA Lunar Science Institute - \$158,983:** Impact Processes in the Origin and Evolution of the Moon: New Sample-driven Perspectives. **PI – David Kring (Lunar and Planetary Science Institute), Co-PI - Thomas Lapen, among many, many others.** (Expired 2014)
- **NSF/OCE (NSF OCE 0619857) - \$142,928 (UH portion):** Collaborative Research: Os, Nd, and Hf isotopes in abyssal peridotites of the Arctic Lena Trough: Continental lithospheric or Asthenospheric mantle origin? **PI: Jonathan Snow, Co-PI: Thomas Lapen.** (5/2007 – 5/2009; extended)
- **NSF Tectonics (NSF EAR 0711527) – \$299,829:** The Deformation History of the India-Asia Suture Zone, Lopukangri Rift, South-Central Tibet. **PI: Michael Murphy, Co-PI: Thomas Lapen, Co-PI: Alexander Robinson.** (36 months, 9/2007 – 9/2010)
- **UH New faculty grants program - \$6,000:** What is the metamorphic history of the ultra-high pressure Dora Maira massif? A Lu-Hf, Sm-Nd, and trace element study of pyrope whiteschists from the Western Alps, Italy. **PI: Thomas Lapen** (12 months)
- **UH Small grants program - \$3,000:** Method development for U-Pb analyses of single zircons by laser ablation inductively-coupled plasma mass spectrometry. **PI: Thomas Lapen** (12 Months)
- **American Chemical Society PRF - \$35,000:** U-Pb age and Hf isotope compositions of detrital zircons from strata of the Ouachita Orogenic Belt, Arkansas, Oklahoma, and Texas. **PI: Thomas Lapen** (24 months, 8/2006 – 8/2008)
- **UH GEAR – \$24,424:** Testing Models of Intercontinental Collision, South-Central Tibet. **PI: Michael Murphy, Co-PI: Thomas Lapen** (12 months, 9/2007 – 9/2008)
- **UH Small grants - \$3,000:** Timing of high-pressure metamorphism in the western Alps. **PI: Thomas Lapen** (4/2008-8/2008)

### ***Lab visitors and collaborators:***

The lab facilities have supported the research of several UH and external research groups. **University of Houston Faculty:** Rasmus Andreasen, Janok Bhattacharya, Alan Brandon, Kevin Burke, Jack Casey, Hank Chafetz, Shankar Chellam (Civil Engineering), Peter Copeland, Qi Fu (planned), Yongjun Gao, Shuhab Khan, Michael Murphy, Alexander Robinson, Joel Saylor, Juan Silva-Tamayo (planned), Jinny Sisson, Jonathan Snow, Roy Weinstein (Physics).

**UH Students, Researchers, and Postdocs:** Ros Armytage, Nicholas Bartschi, Serdar Bektas, Ayse Bozlaker, Deborah Bradley, Steven Braun, Daniel Buechmann, Abigail Bufkin, Keith Carpenter, Xinyang Chen, Melissa Davidson, Jesse Dietderich, Carmen Dragoi, Thomas Gabel, Yongjun Gao, Adrain Gittens, Therica Grosshans, Daniel Imrecke, Ryan Jeffcoat, Jessica Jordan, Jeremy Kent, Andrew Kerekgyarto, David Konig, Shawn Larkin, Claire McLeod, Minako Richter, Veronica Sanchez, Carlos Sanchez, John Shafer, Barry Shaulis, Samuel Simmons, Kellen Springer, Michael Stevens, Kurt Sundell, Katherine Tilghmann, Donald Tomlinson, Shams Ul-Hadi, David van Acken, and Dustin Villareal.

**External Academic:** Brian Beard (UW-Madison), David Draper (NASA-JSC), Hejui Hui (LPI), Anthony Irving (Univ Washington), Matthew Izawa (Royal Ontario Museum), Clark Johnson (UW-Madison), Katherine Joy (Manchester), Michael Ketterer (Northern AZ Univ), Randy Korotev (Wash Univ), David Kring (LPI), Brian Majestic (Univ Denver), Naomi Matthews (Univ Stavanger), Brent Miller (A&M), Des Moser (Univ Western Ontario), Anne Peslier (NASA-JSC), Jennifer Rapp (NASA-JSC), Mark Reagan (Univ Iowa), Kevin Righter (NASA-JSC), Brad Rosenheim (Tulane/Univ South Florida), D. Kent Ross (NASA-JSC), Adam Sarafian (WHOI), Brad Singer (UW-Madison), Justin Simon (NASA-JSC), Kim Tait

(Royal Ontario Museum), Axel Wittmann (Wash Univ), and Udo Zimmerman (Univ Stavanger).

**External Industry:** Heidi Albrecht (Shell), Steve Bergman (Shell), Tim Diggs (Shell), Patrick Laine (Mercury Experts; proposed), Brett Lenz (Grant Co. PUD), and Syed Razavi (Tomson Technologies).

### ***Independently written press coverage of recent research:***

- Taylor, G. J. (May, 2010) A Younger Age for the Oldest Martian Meteorite. Planetary Science Research Discoveries.  
<http://www.psr.d.hawaii.edu/May10/YoungerALH84001.html>
- Wayman, E (July, 2010) Oldest martian meteorite not quite so old. Earth, vol. 55, No. 7, 9.
- Brindley, L., (May 2010) Mars meteorite gets a boost of youth. Chemistry World, vol. 7, 24.  
<http://www.rsc.org/chemistryworld/News/2010/April/15041003.asp>
- Grossman, L., (May 2010) Famous Martian meteorite younger than thought. Science News, vol. 177, 10.  
[http://www.sciencenews.org/view/generic/id/58322/title/Famous\\_Martian\\_meteorite\\_younger\\_than\\_thought](http://www.sciencenews.org/view/generic/id/58322/title/Famous_Martian_meteorite_younger_than_thought)
- Thompson, A., (April 2010) Oldest Mars Meteorite Younger Than Thought. Space.com.  
<http://www.space.com/scienceastronomy/oldest-mars-meteorite-younger-100415.html>
- Staff writers, Martian meteorite younger than thought. CBC News, April 15, 2010.  
<http://www.cbc.ca/technology/story/2010/04/15/tech-mars-meteorite.html>

## ***Teaching***

Below are instructor evaluation data summarized for the courses taught to date. Values for ‘excellent’ to ‘poor’ are percent of total responses.

*Overall assessment of instructor: Entries for "The instructor is an effective teacher"*

Semester/ year	Course	Enrollment	Responses	Excellent	V. Good	Good	Fair	Poor	Average score out of 5	
Fall 2005	Rocks and Minerals	34	24	45.8	45.8	0.0	4.2	4.2	4.25	major
Spring 2006	Petrogenesis	16	14	71.4	21.4	0.0	0.0	7.1	4.50	major
Fall 2006	Mineralogy	53	37	54.1	32.4	8.1	2.7	2.7	4.32	major
Spring 2007	Physical Geology	106	82	15.9	32.9	29.3	13.4	8.5	3.34	non-major
Spring 2007	Metamorphic Petrology	7	7	83.0	17.0	0.0	0.0	0.0	4.83	grad
Fall 2007	Igneous and Meta. Pet.	31	29	66.0	31.0	0.0	0.0	3.0	4.55	major
Spring 2008	Physical Geology	31	23	52.2	26.1	13.0	4.3	4.3	4.17	non-major
Fall 2008	Mineralogy	84	47	36.2	27.7	34.0	0.0	2.1	3.96	major
Spring 2009	Physical Geology	51	41	39.0	26.8	26.8	4.9	2.4	3.95	non-major
Spring 2009	Metamorphic Petrology	5	5	100.0	0.0	0.0	0.0	0.0	5.00	grad
Fall 2009	Igneous and Meta. Pet.	46	44	54.5	27.3	18.2	0.0	0.0	4.36	major
Fall 2010	Mineralogy	85	49	63.3	28.6	8.2	0.0	0.0	4.55	major
Spring 2011	Metamorphic Petrology	8	8	87.5	12.5	0.0	0.0	0.0	4.88	grad
Fall 2011	Igneous and Meta. Pet.	52	38	65.8	28.9	5.3	0.0	0.0	4.61	major
Spring 2012	Physical Geology	128	120	27.5	40.8	28.3	1.7	1.7	3.91	non-major
Fall 2012	Mineralogy	130	115	59.1	29.6	10.4	0.9	0.0	4.47	major
Spring 2013	Physical Geology	175	168	34.5	38.1	25.0	1.2	1.2	4.04	non-major
Fall 2013	Igneous and Meta. Pet.	58	57	66.7	28.1	5.3	0.0	0.0	4.61	major
Spring 2014	Metamorphic Petrology	8	4	75.0	25.0	0.0	0.0	0.0	4.75	grad
Fall 2014	Mineralogy	195	128	50.0	32.0	18.0	0.0	0.0	4.32	major
<b>Average for courses offered to Geo majors</b>				<b>64.5</b>	<b>25.9</b>	<b>7.7</b>	<b>0.6</b>	<b>1.4</b>	<b>4.52</b>	
									<b>Department average</b>	<b>4.02</b>

### **Courses Taught**

- GEOL 1330 Physical Geology
- GEOL 3325 Rocks and Minerals
- GEOL 3335 Petrogenesis
- GEOL 3370 Mineralogy
- GEOL 3373 Igneous and Metamorphic Petrogenesis
- GEOL 3360 Field Geology (Field Camp)
- GEOL 6397 Metamorphic petrology

**New courses developed or heavily revised:**

- GEOL 6397 Metamorphic petrology (NEWLY DEVELOPED)
- GEOL 3373 Igneous and Metamorphic Petrology (HEAVILY REVISED)
- GEOL 3360 Field Geology (Field Camp; HEAVILY REVISED)

**Post-Doctoral Researchers advised since 2005:**

- Dr. Minako Righter (2007-2009; presently 0.5-time lab manager for Lapen's isotope geochemistry lab)

**Graduate students (Lapen as main advisor):**

- Barry Shaulis (MS 2010; PhD 2012; Post-Doctoral Researcher at the Lunar and Planetary Institute, Houston, TX)
  - **MS:** *Provenance of detrital zircons from the Ouachita Mountains of Oklahoma and Arkansas, USA*
  - **PhD:** *Terrestrial and cosmochemical applications of U-Pb zircon, baddeleyite, and phosphate chronology*
- Kellen Springer (MS 2010; Pacific Northwest National Laboratory, Richland, WA USA)
  - **MS:** *Sm-Nd geochronology of the Zermatt-Saas ophiolite, St. Marcel, Italy*
- Jesse Dietderich (MS 2012; Shell Oil Company)
  - **MS:** *Isotope systematics of the eucrite Jonzac*
- Samuel Simmons (MS 2012; Statoil)
  - **MS:** *Lu-Hf and Sm-Nd systematics of Apollo 17 sample 78236: Ages, evolution, and investigations into the neutron fluence correction on the Lu-Hf system*
- Daniel Buechmann (MS 2012; Statoil)
  - **MS:** *Provenance, detrital zircon U-Pb geochronology, and tectonic significance of middle Cretaceous sandstones from the Alberta Foreland Basin*
- Therica Grosshans (MS 2013; EOG Resources)
  - **MS:** *Lu-Hf and Sm-Nd ages and source compositions for depleted shergottite Tissint*
- Katherine Tilghman (MS 2014; Bureau of Ocean Energy Management)
  - **MS:** *Constraining the age of metamorphism in the Dora Maira, Western Alps: Implications of U-Th-Pb ages and REE concentrations in phosphates*
- Shawn Larkin (MS 2015; TBD)
  - **MS:** *Geochemical characterization and "sourcing" of chalcedony artifacts from the Beezley chalcedony, Roza Member, Columbia River Basalt Group, Washington*
- Curtis Calva (MS, In Progress)
- Ryan Jeffcoat (PhD; In Progress)
- Debbie Bradley (PhD; In Progress)
- Andy Kerekgyarto (MS; In Progress; NASA Earth and Space Science Fellowship, 09/2015)

**Undergraduate researchers who worked in Lapen's lab:**

- Samuel Simmons
- Therica Grosshans
- Calvin Silver
- Antonio Sierra
- Daniella Carpio
- Charis Hall
- Darshan Ghandi
- Alicia Staszyc
- Elizabeth Thompson
- Ane Slabic (New)

**PhD students on whose committees Lapen served:**

- Ran Zhang (Geosciences)
- Xinyang Chen (Geosciences)
- Pranav Kulkarni (Civil and Environmental Engineering)
- Divagar Lakshmanan (Civil and Environmental Engineering)
- Shams ul-Hadi (Geosciences)
- Sergio Sarmiento (Geosciences)
- Veronica Sanchez (Geosciences)
- Daniel Imrecke (Geosciences)
- Kurt Sundell (Geosciences)

**MS students on whose committees Lapen served:**

- Sepani Chandima Wickramasinghe (Chemistry)
- Carmen Barzoi (Geosciences)
- Adrian Gittens (Geosciences)
- Raul Benavidez (Geosciences)
- Jeremy Kent (Geosciences)
- Steven Braun (Geosciences)
- Kimberly Mead (Geosciences)
- Jeremy Krimmel (Geosciences)
- Jennifer Campo (Geosciences)
- Michael Stevens (Geosciences)
- Thomas Gabel (Geosciences)
- Nicolas Bartschi (Geosciences)

***Service*****Committees (past and present):*****In the Department***

- Geology Graduate Advisor (Jan. 1, 2012 – present)
- Geology Ph.D. Candidacy Examination Committee
- Geophysics Ph.D. Candidacy Examination Committee
- Scholarship and Awards Committee
- Structural Geology, Stable Isotope, and Isotope Geochemistry Search Committees
- Ph.D. Placement Examination Committee
- Material Committee
- Personnel Committee
- Merit and yearly review committee

***In the College***

- Member of the NSM Research Strategic Planning Committee Meeting
- Member of the College of Natural Sciences and Mathematics Faculty Leave Committee
- Member of the College of Natural Sciences and Mathematics Awards Committee
- Steering committee member of the Rice University-University of Houston Alliances for Graduate Education and the Professoriate (AGEP)

***Outside of the University***

- NASA Cosmochemistry Program panel member (2010)
- NASA Mars Fundamental Research Program panel member (2011, 2012)
- 44<sup>th</sup> Lunar and Planetary Science Conference Committee

- 45<sup>th</sup> Lunar and Planetary Science Conference Committee
- 46<sup>th</sup> Lunar and Planetary Science Conference Committee

#### **Journal article reviewer**

- *Earth and Planetary Science Letters*
- *Journal of Maps*
- *Journal of Petrology*
- *Chemical Geology*
- *Geochimica et Cosmochimica Acta*
- *Contributions Mineralogy and Petrology*
- *Lithos*
- *Journal of Metamorphic Petrology*
- *G-Cubed*
- *Elements*
- *Astrophysical Journal*
- *Nature*

#### **Research proposal reviewer**

- NSF Instrumentation and Facilities
- NSF Tectonics
- NSF Petrology and Geochemistry
- NASA Cosmochemistry
- NASA Mars Fundamental Research
- Swiss NSF

#### **Other recent relevant activities**

- Panel member for a workshop on end-of-life care at Virginia Mason Medical Center, Seattle, WA (2/2014)
- Keynote speaker, 2014 International Mineralogical Association meeting
- Interviewed for an article on lunar formation by Cosmos Magazine  
<http://www.cosmosmagazine.com/news/4635/could-moon-be-younger-we-think>
- Interviewed by National Geographic Online  
<http://news.nationalgeographic.com/news/2014/14/140306-mars-meteorite-crater-space/>
- Invited speaker at the University of Texas Pan American (2015)
- Invited speaker at the University of Texas San Antonio (2015)
- Invited speaker at the Central Washington University (2015)
- Invited speaker Houston Center for Contemporary Craft (Lecture about Fractals; 2014)
- Invited Speaker at the Houston Astronomical Society (2012)
- Invited Speaker at the University of Iowa (2011)
- Invited speaker at Yale hosted 'Frontiers in Crustal Geosciences' symposium Sept 30-Oct 1, 2010
- Invited speaker at the 2010 Goldschmidt Conference, Knoxville, TN
- Invited speaker at the 2010 National Geological Society of America meeting
- Acquired new NASA and NSF-funded instrumentation including a Photon Machines *Analyte* 193 nm eximer UV laser ablation system and Nu Instruments *Nu Plasma 2* MC-ICP-MS.
- Elected member: ILP Task Force IV: Ultra-deep subduction of continental crust.
- Chair of a technical session entitled "Strengthening Links between Metamorphic Conditions and Time: New Advances in High-Temperature Geochronology and Tracing P-T-t Paths of Metamorphic Terranes" for the Fall 2008 GSA meeting in Houston, TX. Session co-chairs were Dr. Andrew Kylander-Clark, Geological Sciences, UC, Santa Barbara and Dr. Erik Scherer, Institut für Mineralogie, Universität Münster, Germany