

**Curriculum Vitae Preparation
Promotion and Tenure Review 2015–2016**

NAME **Olcott Marshall, Alison**

EDUCATION

Ph.D., Geological Sciences, University of Southern California, 2006
B.S., Department of Geophysical Sciences, University of Chicago, 1999

EMPLOYMENT HISTORY

University of Kansas, Department of Geology, Assistant Professor, 2008-present
Woods Hole Oceanographic Institute, Department of Marine Chemistry and Geochemistry,
Postdoctoral Scholar, 2006 - 2007

KU TEACHING RECORD

A. List of Courses Taught

Note on table below: 100-level courses are introductory undergraduate courses, 500-level are upper level undergraduate courses, 700-level are graduate courses. The names of courses cross-listed as a 500/700 level class are merged in the list, although I separated the enrollment numbers. Also, thesis supervision hours are not included in the below list.

| <u>Course #</u> | <u>Title</u> | <u>Term</u> | <u># Enrolled</u> | <u>% Taught</u> |
|-----------------|--|-------------|-------------------|-----------------|
| GEOL 121 | Prehistoric Life: DNA to Dinos | Fall 2015 | | 100 |
| GEOL 177 | Exploring Mars: Our Evolving View of the Red Planet (First Year Seminar) | Fall 2015 | | 100 |
| GEOL 121 | Prehistoric Life: DNA to Dinos | Fall 2014 | 59 | 100 |
| GEOL 591 | Microbial Carbonates | Spring 2014 | 2 | 100 |
| GEOL 791 | | | 7 | |
| GEOL 591 | Chemical Paleontology | Fall 2013 | 4 | 100 |
| GEOL 791 | | | 6 | |
| GEOL 121 | Prehistoric Life: DNA to Dinos | Spring 2013 | 93 | 100 |
| GEOL 121 | Prehistoric Life: DNA to Dinos | Fall 2012 | 112 | 100 |

| Course # | Title | Term | # Enrolled | % Taught |
|-----------------|---|-------------|-------------------|---------------------|
| GEOL 791 | Life in Rocks (same class as Chemical Paleontology) | Fall 2011 | 5 | 100 |
| GEOL 105 | History of the Earth | Summer 2011 | 18 | 100 |
| GEOL 121 | Prehistoric Life: DNA to Dinos | Spring 2011 | 125 | 100 |
| GEOL 591 | Field Techniques in Geobiology | Fall 2010 | 22 | 100 |
| GEOL 791 | Geobiology Seminar | Fall 2010 | 9 | 100 |
| GEOL 105 | History of the Earth | Summer 2010 | 44 | 100 |
| GEOL 591 | Microbial Carbonates | Spring 2010 | 7 | 100 |
| GEOL 791 | Geobiology Seminar | Spring 2010 | 8 | 100 |
| GEOL 591 | Field Techiques in Geobiology | Fall 2009 | 18 | 50 |
| GEOL 791 | Record of Life in Rocks (same class as Chemical Paleontology) | Fall 2009 | 5 | 100 |
| GEOL 121 | Prehistoric Life: DNA to Dinos | Spring 2009 | 119 | 100 |
| GEOL 791 | Organic Geochemistry (same class as Chemical Paleontology) | Fall 2008 | 3 | 100 |
| GEOL 791 | Nature and Evolution of Earth's Early Biosphere | Fall 2008 | 4 | 50 |

B. Undergraduate Advising Record

Advisees

Mallory Stevenson (BS Geology 2013, currently in grad school at East Carolina University)

Research mentees

Abby Glauser (BS in Biology 2015, will attend grad school at University of Oregon)

Chase Breckenwoldt (BS Geology scheduled 2016)

C. Graduate and Postgraduate Advising Record

Committee Chair: Doctoral

1. Julienne Emry, 2009 – 2015* (co-chaired with Dr. Craig Marshall)

Committee Chair: Masters

5. Dru Lockamy, 2015

4. Nicholas A Cestari, 2013 – 2015*
Job with Occidental Petroleum Corporation scheduled to start June 2015.
3. Michael Brenden Keel, 2013 – 2015* (co-chaired with Dr. Craig Marshall)
Job with British Gas scheduled to start July 2015.
2. Brendan Anderson, 2011 – 2013
Currently in Ph.D. program at Cornell University
1. Vincent Nowaczewski, 2009 – 2011
Currently at Chesapeake Energy

* Defense scheduled for summer, 2015

Other graduate committee service

Doctoral Committee Member

Nicole Dzenowski
Becky Dorward
Sarah Gibson
Carla Harper (finished 2015)
Ian Wesley Gapp (finished 2014)

Master's Committee Member

Maritha Huber
Jennifer Lowery
Neil Kinnebrew (finished 2012)
Anya Hess (finished 2011)

D. Honors and Awards for Teaching

Prehistoric Life, a course I transformed in 2014, is a model course for the Science Education for New Civic Engagements and Responsibilities, an NSF-funded program run by the National Center for Science and Civic Engagement. These model courses are chosen “because they demonstrate success, showcase effective strategies, and evidence potential for broader implementation and adaptation.” This course was also highlighted by the KU College as a unique and enjoyable course for students (<http://blog.college.ku.edu/humanities/19-classes-you-didnt-know-you-could-take-in-the-ku-core/>).

RESEARCH RECORD

In all entries below, my name is **bolded**, graduate students are underlined, non-KU graduate students have a dotted underline, and undergraduate students are double underlined.

A. Research Publications and/or Creative Works

Major Publications or Creative Works

22. Emry, J. R., **Olcott Marshall, A.**, & Marshall, C. P. (in press). Evaluating the Effects of Autofluorescence during Raman Hyperspectral Imaging. *Geostandards and Geoanalytical*

Techniques.

This is a peer-reviewed publication. I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a great deal of guidance in preparing the manuscript.

21. Harris, L. V., McHough, M., Hutchinson, I. B., Ingley, R., Malherbe, C., Parnell, J., Edwards, H. G. M., Jehlička, J., & **Olcott Marshall, A.** (in press). Avoiding misidentification of bands in planetary Raman spectra. *Journal of Raman Spectroscopy*.

This is a peer-reviewed publication. I am a secondary author in collaboration with researchers in other laboratories in which advising was not a major component, and I made a significant contribution to interpreting data and writing and preparation of manuscript for publication. Dr. Hutchinson is the principal author.

20. Harris, L., Hutchinson, I. B., Marshall, C. P., **Olcott Marshall, A.**, & Edwards, H. G. M. (in press). Selection of portable spectrometers for planetary exploration - A comparison of 532 nm and 785 nm Raman spectroscopy of reduced carbon in Archaean cherts. *Astrobiology*.

This is a peer-reviewed publication. I am a secondary author in collaboration with researchers in other laboratories in which advising was not a major component, and I made a significant contribution to interpreting data and writing and preparation of manuscript for publication. Dr. Hutchinson is the principal author.

19. **Olcott Marshall, A.**, & Marshall, C. P. (2015). Vibrational Spectroscopy of Fossils. *Journal of Palaeontology*, 58(2), 201-211.

This is an invited peer-reviewed publication. I shared responsibility for initiating and developing the overall project, and had equal shared responsibility for researching, writing, and preparing this manuscript for publication.

18. Glaser, A. L., Harper, C. J., Taylor, T. N., Taylor, E. L., Marshall, C. P., & **Olcott Marshall, A.** (2014). Reexamination of microspore contents in Pennsylvanian spores and pollen grains. *Review of Palaeobotany and Palynology*, 210, 62-68.

This is a peer-reviewed publication. I am a secondary author in collaboration with researchers in other laboratories, although advising students both undergraduate and graduate was a major component, as the students needed to be trained how to collect and interpret geochemical data. Additionally, I made a significant contribution to interpreting data and writing and preparation of manuscript for publication. Dr. T. Taylor is the principal author.

17. Marshall, C. P., & **Olcott Marshall, A.** (2014). Raman spectroscopy as a screening tool for ancient life detection on Mars. *Philosophical Transactions of the Royal Society, A*, 372(2030), pii: 20140195. doi: 10.1098/rsta.2014.0195.

This is an invited peer-reviewed publication. I shared responsibility for initiating and developing the overall project, and had equal shared responsibility for researching, writing, and preparing this

manuscript for publication.

This article was featured in over 35 local, national, and international news sources, including:

Daily Express (UK) <http://www.express.co.uk/news/nature/578080/SCIENTISTS-hope-prove-conclusively-life-Mars-ocean-died-out>

Daily Times (Pakistan) <http://www.dailytimes.com.pk/entertainment/15-May-2015/scientists-working-to-identify-signs-of-life-on-mars>

Delhi Daily Times (India) <http://www.delhidailynews.com/news/New-technique-may-help-spot-life-on-Mars-1431930868/>

Yibada (China) <http://en.yibada.com/articles/33440/20150518/new-method-combines-extraterrestrial-search-technology-proof-ancient-aliens-mars.htm>

KU News

16. **Olcott Marshall, A.**, Jehlička, J., Rouzaud, J.-N., & Marshall, C. P. (2014). Multiple generations of carbonaceous material deposited in Apex chert by basin-scale pervasive hydrothermal fluid flow. *Gondwana Research*, 25(1), 284-289.

This is a peer-reviewed publication. I was the primary person responsible for interpreting the data, and writing and preparing the manuscript for publication. This publication was featured in international media.

Article was featured on:

Science Network of Western Australia (<http://sciencewa.net.au/topics/technology-innovation/item/2185-proof-of-life-in-pilbara-rock-formation-one-step-closer-with-new-technique/2185-proof-of-life-in-pilbara-rock-formation-one-step-closer-with-new-technique>)

Charles University of Prague Department of Geology Homepage

(<https://www.natur.cuni.cz/geologie/aktuality/clanek-jana-jehlicky-z-ugmnz-a-spoluautoru-o-zdrojich-ubliku-v-pilbarskem-kratonu-australie-v-prestiznim-casopise-gondwana-research>)

15. Marshall, C. P., & **Olcott Marshall, A.** (2013). Raman hyperspectral imaging of microfossils: potential pitfalls. *Astrobiology*, 13, 920-931.

This is a peer-reviewed publication. I shared responsibility for initiating and developing the overall project, and had equal shared responsibility for researching, writing, and preparing this manuscript for publication.

The journal selected this as a featured highlight article, which meant it had 2 complimentary weeks of open access.

14. **Olcott Marshall, A.**, Nowaczewski, V. S., & Marshall, C. P. (2013). Microchemical differentiation of conodont and scolecodont microfossils. *Palaios*, 28, 433-437.

This is a peer-reviewed publication. I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of training in the paleontological and geochemical

aspects of the data collected.

13. **Olcott Marshall, A.**, & Marshall, C. P. (2013). Comment on "Biogenicity of Earth's earliest fossils: A resolution of the controversy" by J.W. Schopf and A. B. Kudryavtsev. *Gondwana Research*, 22(3-4), 761-771. doi:10.1016/j.gr.2012.12.006

This is a peer-reviewed publication. I was the primary person responsible for writing and preparing the manuscript for publication.

12. **Olcott Marshall, A.**, & Marshall, C. P. (2013). Field-based Raman spectroscopic analyses of an Ordovician stromatolite. *Astrobiology*, 13, 814-820.

This is a peer-reviewed publication. I was the primary person responsible for interpreting the data, and writing and preparing the manuscript for publication. This publication arose out of a Geobiology Field Technique class I taught in Fall 2010.

The journal selected this as a featured highlight article, which meant it had 2 complimentary weeks of open access.

11. Rothschild, B., Martin, L., Anderson, B. A., **Olcott Marshall, A.**, & Marshall, C. P. (2013). Raman spectrographic documentation of Oligocene bladder stone. *Naturwissenschaften*, 100, 789-794.

This is a peer-reviewed publication. I am a secondary author in collaboration with a student in my laboratory, thus advising a graduate student was a major component, as he needed to be trained how to collect and interpret geochemical data. Additionally, I made a significant contribution to interpreting data and writing and preparation of manuscript for publication. Dr. Martin is the principal author.

10. **Olcott Marshall, A.**, Emry, J. R., & Marshall, C. P. (2012). Multiple Generations of Carbon in the Apex Chert and Implications for Preservation of Microfossils. *Astrobiology*, 12(2), 160-166.

This is a peer-reviewed publication. I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and writing and preparation of manuscript for publication.

9. **Olcott Marshall, A.**, Wehrbein, R. L., Lieberman, B. S., & Marshall, C. P. (2012). Raman spectroscopic investigations of Burgess Shale-type preservation: a new way forward. *Palaios*, 27(5), 288-292.

This is an invited peer-reviewed publication. I am the first author on this project. I was the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as the student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and I was the primary person who wrote and prepared manuscript for publication.

8. Marshall, C. P., & **Olcott Marshall, A.** (2011). Hematite and carbonaceous materials in geological samples: a cautionary tale. *Spectrochimica Acta*, 80, 133-137.

This is an invited peer-reviewed publication. I shared responsibility for initiating and developing the overall project, and had equal shared responsibility for researching, writing, and preparing this manuscript for publication.

This publication was featured in the online magazine Spectroscopy Now (<http://www.spectroscopynow.com/details/ezine/sepspec26058ezine/Rocky-road-to-confusion-Raman-tricks-geochemists.html>).

7. Marshall, C. P., Emry, J. R., & **Olcott Marshall, A.** (2011). Haematite pseudomicrofossils present in the 3.5 billion year old Apex Chert. *Nature Geoscience*, 4, 240-243. doi:10.1038/NGEO1084

This is a peer-reviewed publication. I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and writing and preparation of manuscript for publication.

This article was featured in the local, national, and international press, including:

Nature (<http://www.nature.com/news/2011/110220/full/news.2011.110.html>)

CBSNews.com (<http://www.cbsnews.com/news/debunking-earths-oldest-fossil-find/>)

Daily Mail (UK) (<http://www.dailymail.co.uk/sciencetech/article-1367544/Whoops-Scientists-left-red-faced-oldest-evidence-life-turns-iron-deposits.html>)

New Scientist (<http://www.newscientist.com/article/dn20222-alienlife-claims-spark-monster-mudslinging.html>)

Wired (<http://www.wired.com/2011/03/aliens-riding-meteorites-arsenic-redux-or-something-new/>)

Astrobiology Magazine (<http://www.astrobio.net/news-exclusive/new-study-finds-apex-fossils-arent-life/>)

PhysOrg.com (<http://phys.org/news/2011-02-oldest-fossils.html>)

Spectroscopy Now (<http://www.spectroscopynow.com/details/ezine/sepspec24959ezine/Rock-and-ave-Raman-discredits-microbial-fossils.html>)

Futura Sciences (a French Science Magazine) (<http://www.futura-sciences.com/magazines/terre/infos/actu/d/geologie-plus-vieilles-bacteries-monde-nen-seraient-pas-28284/>)

Lawrence Journal World

University Daily Kansan

WIBW 580AM Radio Station

6. Marshall, C. P., & **Olcott Marshall, A.** (2010). The Potential of Raman spectroscopy for the analysis of diagenetically transformed carotenoids. *Philosophical Transactions A*, 368, 3137-3144.

This is a peer-reviewed publication. I shared responsibility for initiating and developing the overall project, and had equal shared responsibility for researching, writing, and preparing this manuscript for publication.

5. **Olcott Marshall, A.**, Corsetti, F. A., Sessions, A. L., & Marshall, C. P. (2009). Raman spectroscopy and biomarker analysis reveal multiple carbon inputs to a Precambrian glacial sediment. *Organic Geochemistry*, 40, 1115-1123.

This is a peer-reviewed publication. I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the manuscript for publication.

4. **Olcott, A. N.** (2007). The utility of biomarkers as paleoenvironmental indicators. *Palaios*, 22(2), 111.

This is an invited peer-reviewed publication.

3. Corsetti, F. A., **Olcott, A. N.**, & Bakermans, C. (2006). The biotic response to Neoproterozoic snowball Earth. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 232(114), 114-130.

This is a peer-reviewed publication. I had co-equal shared responsibility for researching, writing, and preparing this manuscript for publication.

2. **Olcott, A. N.**, Sessions, A. L., Corsetti, F. A., Kaufman, A. J., & de Oliveira, T. F. (2005). Biomarker evidence for photosynthesis during Neoproterozoic glaciation. *Science*, 319 (5747), 471-477.

This is a peer-reviewed publication. I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the manuscript for publication.

This article was featured in the local, national, and international press, including Scientific American, Astrobiology.net, PhysOrg.com, NewScientist.com, Geotimes.org, and in the Brazilian Press.

1. Ricardo, A., Carrigan, M. A., **Olcott, A. N.**, & Benner, S. A. (2004). Borate minerals stabilize ribose. *Science*, 303(5655), 196.

This is a peer-reviewed publication. I shared responsibility for researching, writing, and preparing this manuscript for publication. Primary author is Dr. Benner.

This publication was featured in the online magazine Spectroscopy Now at the time, and the project has recently received more focus in the popular media with the discovery of boron on Mars.

Minor Publications or Creative Works

2. **Olcott Marshall A** & Marshall C.P. (2012) Potential biological affinity of porosity producing organic carbon in shaley carbonates. Report for ConocoPhillips.

This is an invited confidential report. I had equal shared responsibility for researching, writing, and preparing this manuscript for publication.

1. **Olcott, A. N.** (2007). [Review of *Neoproterozoic Geobiology and Paleobiology*, ed Xiao, S. and Kaufman, A.J.]. *Palaios*. <http://paleo.ku.edu/palaios/reviews/xiao.pdf>

This is an invited publication.

Works Submitted or Ready for Submission.

Journal Articles

4. **Olcott Marshall, A.**, & Bitting, K. S. (accepted pending revisions). Teaching through Human-Driven Extinctions and Climate Change: Adding Civic Engagement to an Introductory Geology Course for Non-Majors. *International Journal of Science Education and Civic Engagement*.

This is a peer-reviewed publication. I was the primary person responsible for interpreting the data, and writing and preparing the manuscript for publication. The journal, which publishes biennially, has accepted the manuscript for publication in the Winter 2016 issue, pending revisions.

3. **Olcott Marshall A.**, & Cestari N. A. (in review) Biomarker analysis of samples visually identified as microbial in the Eocene Green River Formation: An analog for Mars. *Astrobiology*.

This is a peer-reviewed publication. I am the first author on this project, and am the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and I wrote and prepared the manuscript for publication.

2. Marshall, C. P., & **Olcott Marshall, A.** (in review). Challenges analyzing gypsum on Mars by Raman spectroscopy. *Astrobiology*.

This is a peer-reviewed publication. I shared responsibility for initiating and developing the overall project, and had equal shared responsibility for researching, writing, and preparing this manuscript for publication.

1. Platt, B. F., Smith, J. J., Ludvigson, G. A., Sawin, R. S., Marshall, C. P., & **Olcott Marshall, A.** (in review). Enigmatic redbeds exposed at Point of Rocks, Cimarron National Grassland, Morton County, Kansas: Chronostratigraphic constraints from U-Pb dating of detrital zircons. *Kansas Geological Survey, Current Research in Earth Sciences*.

This is a peer-reviewed publication. I am a secondary author in collaboration with researchers in other

laboratories in which advising was not a major component, and I made a significant contribution to interpreting data and writing and preparation of manuscript for publication. Dr. Smith is the principal author.

Book Chapters

1. **Olcott Marshall A.** & Bitting K. S. (chapter proposal accepted) Case Study: Flipping a Paleontology Class for Non-Majors. In: *The Flipped College Classroom: Conceptualized and Re-Conceptualized*. Springer Books. (Educational Communications and Technology: Issues and Innovations).

This is a peer-reviewed publication. I was the primary person responsible for interpreting the data, and writing and preparing the manuscript for publication. The chapter proposal has been accepted, so the chapter will be published, pending revisions.

B. Scholarly Presentations

Major Presentations

60. Harper, C. J., **Olcott Marshall, A.**, Marshall, C. P., Taylor, T. N., Krings, M. & Taylor, E. L., "Biomarkers in paleomycology – A case study using fungus-infected Permian woods from Antarctica," Botanical Society of America Annual Meeting, Edmonton, Canada. (2015).

I am a secondary author in collaboration with researchers in other laboratories, although advising was a major component, as the graduate student needed to be trained how to collect and interpret geochemical data. Additionally, I made a significant contribution to interpreting data and writing and preparation of presentation. Dr. T. Taylor is the principal author.

59. Bitting, K. S., & **Olcott Marshall, A.**, "Student Learning Outcomes and Experiences Associated with Student-Centered Redesign of a General Education Geology Course," Earth Educators' Rendezvous 2015, Boulder, USA. (2015).

I am the primary person responsible for interpreting the data, and writing and preparing the presentation.

58. Emry, J. R., **Olcott Marshall, A.**, & Marshall, C. P., "Life Detection Limitations Due To Fluorescence In Raman Imaging," Astrobiology Science Conference 2015, Chicago, USA. (2015).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needs a great deal of guidance in preparing the presentation.

57. Marshall, C. P., **Olcott Marshall, A.**, Aitken, J. B., Lai, B., Vogt, S., & Lay, P. A., "Imaging Of Vanadium And Nickel In Microfossils: A New Potential Biosignature." Astrobiology Science Conference 2015, Chicago, USA. (2015).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing

the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

56. **Olcott Marshall, A.**, & Bitting, K. S., "Creating A First Year Seminar In Astrobiology." Astrobiology Science Conference 2015, Chicago, USA. (2015).

I am the primary person responsible for interpreting the data, and writing and preparing the presentation.

55. **Olcott Marshall, A.**, & Cestari, N. A., "Searching For Biomarkers At The Outcrop Scale," Astrobiology Science Conference 2015, Chicago, USA. (2015).

I am the first author on this project, and am the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and will be writing and preparing the presentation.

54. **Olcott Marshall, A.**, & Marshall, C. P., "Limitations on Raman Spectroscopy on Mars: Lessons from Oklahoma," Astrobiology Science Conference 2015, Chicago. (2015).

I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

53. Bitting, K. S., **Olcott Marshall, A.**, & Roberts, J. A., "Student perceptions of active learning in redesigned introductory geology courses at a U.S. public university," Geological Society of America Annual Meeting, Vancouver, Canada. (2014).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

52. Roberts, J. A., **Olcott Marshall, A.**, & Bitting, K. S., "Approaches to transforming instructor teaching philosophy," Geological Society of America Annual Meeting, Vancouver, Canada. (2014).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

51. Emry, J. R., **Olcott Marshall, A.**, & Marshall, C. P., "Complementary Methods for Addressing Fluorescence Issues in Raman Hyperspectral Datasets," 11th International Conference on Raman Spectroscopy Applied to the Earth Sciences, St. Louis, USA. (2014).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a great deal of guidance in preparing the presentation.

50. Harris, L. V., Hutchinson, I. B., Ingley, R., Marshall, C. P., **Olcott Marshall, A.**, &

Edwards, H. G. M., "Planetary Exploration with a Raman Spectrometer: A Study of Carbonaceous Material Using Portable Instrumentation (532 and 785 nm)." 11th International Conference on Raman Spectroscopy Applied to the Earth Sciences, St. Louis, USA. (2014).

I am a secondary author in collaboration with researchers in other laboratories in which advising was not a major component, and I made a significant contribution to interpreting data and writing and preparation of presentation. Dr. Hutchinson is the principal author.

49. Marshall, C. P., & **Olcott Marshall, A.**, "Examining Enameloid Chemistry in Lower Vertebrates to Determine Conodont Taxonomic Affinity," 11th International Conference on Raman Spectroscopy Applied to the Earth Sciences, St. Louis, USA. (2014).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

48. **Olcott Marshall, A.**, & Marshall, C. P., "Field Raman Analyses of Mars Analog Sites: Test Cases for Future Rover Missions." 11th International Conference on Raman Spectroscopy Applied to the Earth Sciences, St. Louis, USA. (2014).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

47. Lowry, J. G., Rankey, E., & **Olcott Marshall, A.**, "Controls on Sedimentology and Organic Matter of a Coquina Beach Ridge: Fine-Grained Carbonate Lagoon System on a Holocene Carbonate Ramp: Yucatan Peninsula, Mexico," American Association of Petroleum Geologists Annual Meeting, Houston, USA. (2014).

I am a secondary author in collaboration with researchers in other laboratories, although advising was a major component, as the graduate student needed to be trained how to collect and interpret geochemical data. Additionally, I made a significant contribution to interpreting data and writing and preparation of presentation. Dr. Rankey is the principal author.

46. Glauser, A., Harper, C. J., Taylor, T. N., Taylor, E., Marshall, C. P., & **Olcott Marshall, A.**, "Reexamination and analysis of microspore contents in Pennsylvanian spores and pollen grains," Botanical Society of America Annual Meeting, New Orleans, USA. (2013).

I am a secondary author in collaboration with researchers in other laboratories, although advising was a major component, as the undergraduate and graduate students needed to be trained how to collect and interpret geochemical data. Additionally, I made a significant contribution to interpreting data and writing and preparation of presentation. Dr. T. Taylor is the principal author.

45. Harper, C. J., Taylor, T. N., Krings, M., **Olcott Marshall, A.**, & Marshall, C. P., "Wood-rotting fungi have a dark history: Evidence from the fossil record," American

Phytopathological Society-Mycolology Society of America Joint Meeting, Austin, USA. (2013).

This is an invited talk.

I am a secondary author in collaboration with researchers in other laboratories, although advising was a major component, as the graduate student needed to be trained how to collect and interpret geochemical data. Additionally, I made a significant contribution to interpreting data and writing and preparation of presentation. Dr. T. Taylor is the principal author.

44. Marshall, C P, & **Olcott Marshall, A.**, "Raman Hyperspectral Imaging of Carbonaceous Materials and Hematite: Potential Misinterpretations." V.M. Goldschmidt Conference, Florence, Italy. (2013).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

43. **Olcott Marshall, A.**, Jelička, J., Rouzaud, J.-N., & Marshall, C. P., "Delineating Biotic and Abiotic Carbonaceous Material in the Apex Chert," V.M. Goldschmidt Conference, Florence, Italy. (2013).

I was the primary person responsible for interpreting the data, and writing and preparing this presentation.

42. **Olcott Marshall, A.**, Jelička, J., Rouzaud, J.-N., & Marshall, C. P., "Novel Application of High-Resolution Transmission Electron Microscopy to Archean Paleontology," Geological Society of America Annual Meeting, Denver, USA. (2013).

This is an invited talk.

I was the primary person responsible for interpreting the data, and writing and preparing this presentation.

41. Anderson, B. M., & **Olcott Marshall, A.**, "A new dataset of Phanerozoic Marine Konservat-Lagerstätten: Patterns in secular distribution," Geological Society of America Annual Meeting, Charlotte, USA. (2012).

I am the first author on this project, and am the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and writing and preparing the publication.

40. Emry, J. R., Marshall, C. P., & **Olcott Marshall, A.**, "Paragenetic Description and Environment of Formation of a Terrestrial Mars Analog," Astrobiology Science Conference 2012, Atlanta, USA. (2012).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a great deal of guidance in preparing the presentation, as well as training in the geochemical techniques.

39. Marshall, C. P., Emry, J. R., & **Olcott Marshall, A.**, "Multiple Generations of carbonaceous material in the ~3.5 Ga. Apex Chert: A cautionary tale for the preservation of ancient microfossils," 10th International Conference on Raman Spectroscopy Applied to the Earth Sciences, Nancy, France. (2012).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a great deal of guidance in preparing the presentation, as well as training in the geochemical techniques. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

38. **Olcott Marshall, A.**, Wehrbein, R. L., Lieberman, B. S., Lin, J.-P., & Marshall, C. P., "Application of Raman spectroscopy to Burgess Shale-Type Preservation," 10th International Conference on Raman Spectroscopy Applied to the Earth Sciences, Nancy, France. (2012).

I am the first author on this project. I was the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as the student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and I was the primary person who wrote and prepared the presentation.

37. Marshall, C. P., Emry, J. R., & **Olcott Marshall, A.**, "The search for the earliest evidence of life on Earth: A Cautionary Tale," 23rd International Conference on Raman Spectroscopy, Bangalore, India. (2012).

This was an invited plenary talk.

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a great deal of guidance in preparing the presentation, as well as training in the geochemical techniques. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

36. **Olcott Marshall, A.**, "Oldest Life or Chemical Artifacts? A Reassessment of the Apex Chert," University of Minnesota, Department of Geology, Department Seminar. (2011).

This was an invited presentation.

35. Marshall, C. P., & **Olcott Marshall, A.**, "The search for the evidence of the earliest life on Earth, a cautionary tale," Federation of Analytical Chemistry and Spectroscopy Societies Conference, Reno, USA. (2011).

This was an invited presentation.

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

34. Nowaczewski, V. S., & Olcott Marshall, A., "Biomarker and paleontological investigations of the upper and lower Woodford Shale, south-central Oklahoma," Geological Society of America Annual Meeting, Minneapolis, USA. (2011).

I am the first author on this project, and am the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

33. Nowaczewski, V. S., Olcott Marshall, A., & Marshall, C. P., "FTIR microspectroscopy of scolecodont and conodont microfossils from the Woodford Shale, south-central Oklahoma," Geological Society of America Annual Meeting, Minneapolis, USA. (2011).

I am the first author on this project, and am the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

32. Wehrbein, R. L., Marshall, C. P., Lin, J.-P., Lieberman, B. S., & Olcott Marshall, A., "Application of Raman spectroscopy on Burgess Shale-type preservation," Geological Society of America Annual Meeting, Minneapolis, USA. (2011).

I am the senior author on this project. I was the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as the student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and I was the primary person who wrote and prepared the presentation.

31. Nowaczewski, V. S., & Olcott Marshall, A., "Microfauna and biomarkers of the Woodford Shale: Western Arkoma Basin, Oklahoma," Geological Society of America South-Central Section Annual Meeting, New Orleans, USA. (2011).

I am the first author on this project, and am the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

30. Emry, J. R., Olcott Marshall, A., & Marshall, C. P., "Astrobiological Implications of the Apex Chert Microfossils," Geological Society of America Annual Meeting, Denver, USA. (2010).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a

great deal of guidance in preparing the presentation, as well as training in the geochemical techniques. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

29. **Olcott Marshall, A.**, Lieberman, B. S., & Marshall, C. P., "Preservation of Burgess Shale Type Fossils Revealed by Raman Spectroscopy," Geological Society of America Annual Meeting, Denver, USA. (2010).

I am the senior author on this project. I was the primary person responsible for initiating and developing the overall project. Additionally, I made a significant contribution to interpreting data and I was the primary person who wrote and prepared the presentation.

28. Emry, J. R., **Olcott Marshall, A.**, and Marshall, C. P., "The Search for Novel Biosignatures in the Apex Chert," V.M. Goldschmidt Conference, Knoxville, USA. (2010).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a great deal of guidance in preparing the presentation, as well as training in the geochemical techniques. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

27. Marshall, C. P., & **Olcott Marshall, A.**, "Oil Shale Geochemistry," V.M. Goldschmidt Conference, Knoxville, USA. (2010).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

26. **Olcott Marshall, A.**, & Marshall, C. P., "Multiple Generations of Organic Carbon Revealed in a Neoproterozoic Glacial Succession," V.M. Goldschmidt Conference, Knoxville, USA. (2010).

I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the presentation.

This presentation was selected as a research highlight of the conference by conference organizers, and was press released.

25. Marshall, C. P., Lieberman, B. S., & **Olcott Marshall, A.**, "Preservation of Burgess Shale Type Fossils Revealed by Raman Spectroscopy," Burgess Shale 100th anniversary Meeting, Banff, Canada. (2009).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

24. **Olcott Marshall, A.**, Willman, S., Moczydlowska, M., & Marshall, C. P.,

"Neoproterozoic Acritarchs Pelagic Lifestyle Revealed by Carbon Isotopes," Burgess Shale 100th anniversary Meeting, Banff, Canada. (2009).

I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the presentation.

23. Marshall, C. P., & **Olcott, A. N.**, "A New Parameter to Predict Successful Oil Shale Retorting," Geological Society of America Annual Meeting, Houston, USA. (2008).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

22. **Olcott, A. N.**, & Marshall, C. P., "Chemotaxonomy of oil shales," Geological Society of America Annual Meeting, Houston, USA. (2008).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

22. Marshall, C. P., & **Olcott, A. N.**, "Raman Spectroscopy of Carotenoids," Federation of Analytical Chemistry and Spectroscopy Societies Annual Conference, Reno, NV. (2008).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

21. Marshall, C. P., & **Olcott, A. N.**, "The hydrocarbon generation potential of oil shales based on chemical content," American Association of Petroleum Geologists Annual Meeting, San Antonio, USA. (2008).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

17. Olcott, A. N., Marshall, C. P., and Eglinton, T. I., "Chemotaxonomy of oil shales," American Association of Petroleum Geologists Annual Meeting 2008. (2008).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

20. Marshall, C. P., & **Olcott, A. N.**, "The potential of Resonance Raman spectroscopy for the analysis of diagenetically transformed carotenoids," 8th International Conference on Raman Spectroscopy Applied to the Earth Sciences, Ghent, Belgium. (2008).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

presentation.

19. **Olcott, A. N.**, & Eglinton, T. I., "Ruthenium tetroxide oxidation of macromolecular organic matter in marine sediments," Ocean Sciences Meeting 2008, Orlando, USA. (2008).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

16. **Olcott, A. N.**, "Chemotaxonomy of *Tasmanites*," Agouron/NSF/USC Wrigley Institute International Geobiology Course, Colloquium on novel chemical methods to characterize fossils. (2008).

This was an invited presentation.

15. **Olcott, A. N.**, & Eglinton, T. I., "Products from Ruthenium tetroxide oxidation of macromolecular organic matter in marine sediments," International Meeting of Organic Geochemists 2007, Torquay, England. (2007).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

14. **Olcott, A. N.**, "Signs of Photosynthesis on a Snowball Earth," University of Uppsala, Sweden, Department of Geology, Departmental Symposium. (2007).

This was an invited presentation.

13. **Olcott, A. N.**, Li, C., Sessions, A. L., Corsetti, F. A., & Feng, P., "Biogeochemistry of Neoproterozoic Low Latitude Glaciations," V.M. Goldschmidt Conference, Melbourne, Australia. (2006).

I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the presentation.

12. **Olcott, A. N.**, Sessions, A. L., Corsetti, F. A., & Kaufman, A. J., "Photosynthesis during Snowball Earth," Snowball Earth Conference 2006, Ancona, Italy. (2006).

I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the presentation.

11. **Olcott, A. N.**, "Biomarkers of a Neoproterozoic Glaciation," California Institute of Technology, Division of Geological and Planetary Sciences, Geology Club Seminar. (2006).

This was an invited presentation.

10. **Olcott, A. N.**, "Biomarkers of a Neoproterozoic Glaciation," Hamilton College, Department of Geology, Departmental Seminar. (2006).

This was an invited presentation.

9. **Olcott, A. N.**, "Biomarkers of a Neoproterozoic Glaciation," Massachusetts Institute of Technology, Department of Earth, Atmosphere and Planetary Sciences, Geobiology Seminar Series. (2006).

This was an invited presentation.

8. **Olcott, A. N.**, "Biomarkers of a Neoproterozoic Glaciation," University of Kansas, Department of Geology, Department Seminar. (2006).

This was an invited presentation.

7. **Olcott, A. N.**, "Biomarkers of a Neoproterozoic Glaciation," University of Washington, Department of Earth Sciences, Departmental Seminar. (2006).

This was an invited presentation.

6. **Olcott, A. N.**, Corsetti, F. A., & Sessions, A. L., "Biomarkers of a Neoproterozoic Glaciation," Earth System Processes II, 2005, Calgary, Canada. (2005).

I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the presentation.

5. **Olcott, A. N.**, Corsetti, F. A., Sessions, A. L., & Kaufman, A. J., "Signs of Photosynthesis in a Low-Latitude Neoproterozoic Glaciation," Geological Society of America, 2005 Annual Meeting, Salt Lake City, USA. (2005).

I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the presentation.

4. **Olcott, A. N.**, Sessions, A. L., Corsetti, F. A., & Kaufman, A. J., "Biomarkers of a Neoproterozoic Glaciation," American Geophysical Union, 2005 Annual Meeting, San Francisco. (2005).

I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the presentation.

3. **Olcott, A. N.**, "Life During Snowball Earth," UC Santa Barbara, Department of Geology, Departmental Seminar. (2005).

This was an invited presentation.

2. **Olcott, A. N.**, Lorentz, N. J., Corsetti, F. A., & Berelson, W. M., "Reevaluation gravimetric determination of carbonate associated sulfate concentrations," Geological Society of America, 2004 Annual Meeting, Denver, USA. (2004).

I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the presentation.

1. **Olcott, A. N.**, Corsetti, F. A., & Awramik, S. M., "A new look at stromatolite form diversity," Geological Society of America, 2002 Annual Meeting, Denver, USA. (2002).

I am first author, and was the primary person responsible for collecting and interpreting the data, and writing and preparing the presentation.

Minor Presentations

14. Cestari, N. A., & **Olcott Marshall, A.**, "Reservoir and Source Potential of Eocene Microbialites, Green River Formation, USA," Kansas Interdisciplinary Carbonates Consortium Annual Review Meeting, Lawrence, USA. (2015).

I am the first author on this project, and am the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

13. Keel, M. B., Marshall, C. P., & **Olcott Marshall, A.**, "Characterization of Mudrocks: Examining the Relationships Among Geochemistry, Porosity, and Microscale Features," Kansas Interdisciplinary Carbonates Consortium Annual Review Meeting, Lawrence, USA. (2015).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of guidance in preparing the presentation.

12. Cestari, N. A., & **Olcott Marshall, A.**, "Reservoir Potential of Microbial Carbonates," Kansas Interdisciplinary Carbonates Consortium Annual Review Meeting, Lawrence, USA. (2014).

I am the first author on this project, and am the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

11. Keel, M. B., **Olcott Marshall, A.**, & Marshall, C. P., "Organic Porosity in Tight Carbonate Reservoirs," Kansas Interdisciplinary Carbonates Consortium Annual Review Meeting, Lawrence, USA. (2014).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my Masters student needed a great deal of guidance in preparing the presentation.

10. Lowry, J. G., Rankey, E., & **Olcott Marshall, A.**, "Controls on Sedimentology and Organic Matter of a Coquina Beach Ridge: Fine-Grained Carbonate Lagoon System on a Holocene Carbonate Ramp: Yucatan Peninsula, Mexico," Kansas Interdisciplinary Carbonates Consortium Annual Review Meeting, Lawrence, USA. (2014).

I am a secondary author in collaboration with researchers in other laboratories, although advising was a major component, as the graduate student needed to be trained how to collect and interpret geochemical data. Additionally, I made a significant contribution to interpreting data and writing and preparation of presentation. Dr. Rankey is the principal author.

9. **Olcott Marshall, A.**, "Optimizing instrumentation for the 2020 Mars Rover Mission," KU Astrobiophysics Group. (2014).

This is an invited talk.

8. **Olcott Marshall, A.**, & Marshall, C. P., "Complications in the search for Early Life," KU Astrobiophysics Group. (2013).

This is an invited talk. I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

7. Marshall, C. P., & **Olcott Marshall, A.**, "Organic Geochemistry of Oil Shales," Kansas Interdisciplinary Carbonates Consortium Annual Review Meeting, Lawrence, USA. (2012).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

6. Marshall, C. P., & **Olcott Marshall, A.**, "The search for the earliest evidence of life on Earth: A cautionary tale," KU Astrobiophysics Group. (2012).

This is an invited talk. I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

5. Nowaczewski, V. S., Marshall, C. P., & **Olcott Marshall, A.**, "An Organic Geochemical and Microfaunal Case Study of the Woodford Shale," Kansas Interdisciplinary Carbonates Consortium Annual Review Meeting, Lawrence, USA. (2011).

I am the first author on this project, and am the primary person responsible for initiating and developing the overall project. Advising was also a major component of this project, as my Masters

student needed a great deal of training in the paleontological and geochemical aspects of the data collected. Additionally, I made a significant contribution to interpreting data and writing and preparing the presentation.

4. **Olcott Marshall, A.,** & Marshall, C. P., "The Importance of Oil Shale Macromolecular Chemistry for Maximizing Retorting Potential," Kansas Interdisciplinary Carbonates Consortium Annual Review Meeting, Lawrence, USA. (2011).

I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

3. **Olcott Marshall, A., Emry, J. R.,** & Marshall, C. P., "The search for life in the 3.5 billion year old Apex Chert," KU Astrobiophysics Group. (2011).

This is an invited talk. I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project. Advising was also a major component of this project, as my doctoral student needed a great deal of guidance in preparing the presentation.

2. Marshall, C. P., & **Olcott Marshall, A.,** "The hydrocarbon generation potential of oil shales based on chemical content," Kansas Geological Society, Wichita, USA. (2009).

This is an invited talk. I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

1. **Olcott, A. N.,** & Marshall, C. P., "The hydrocarbon generation potential of oil shales based on chemical content," ExxonMobil production group. (2008).

This is an invited talk. I am the co-senior author and co-PI on this project. I shared responsibility for initiating and developing the overall project, and have equal shared responsibility for researching, writing, and preparing this presentation.

C. Grants and/or other Funded Projects

External Funding

Funded Proposals

3. **Olcott Marshall, A.** (Co-Principal), & Bitting, K. (Co-Principal). *SSI 2014 Post-Institute Implementation Award*. This is an NSF subaward granted by the National Center for Science and Civic Engagement \$3,000 (April 2015 - Present). (Refereed/Competitive)
Current Status: Funded
2. **Olcott Marshall, A.** (Principal). *Delineating Sources of Organic Matter in the Woodford Shale Formation*. Chesapeake Faculty Research Award \$50,000 (August 2014 - Present). (Refereed/Competitive)

Current Status: Funded

1. **Olcott Marshall, A.** (Co-Principal), & Marshall, C. P. *Pilot Study: Potential biological affinity of porosity producing organic carbon in shale carbonates a predictive approach.* ConocoPhillips \$5,361 (2012). (Invited Sole Source Contract)
Current Status: Funded
Invited proposal internally reviewed process.

Proposals under Review

2. **Olcott Marshall, A.** (Principal), & Roberts, J. A. (Co-Principal). Advancing problem solving, sense of community, and social responsibility through high value field experiences in geosciences for incoming undergraduates and secondary educators. NSF GEOPATH \$300,000. (Refereed/Competitive)
Current Status: Proposal selected as institutional submission
1. **Olcott Marshall, A.** (Principal). Pilot Study: Biomarker Preservation Potential of a Sulfur-rich Evaporative Mars Analog. NASA Exobiology (Refereed/Competitive)
Current Status: Step 1 Proposal under review

Other Proposals Submitted, Not Funded

14. **Olcott Marshall, A.** (Principal), Marshall, C. (Co-Investigator), & Bitting, K. S. *Detecting Biosignatures in Mars Analog Environments with Rover-like Instrumentation.* NASA: Planetary Science and Technology through Analog Research \$221,786, Submitted 2014. (Refereed/Competitive)
Current Status: Not Funded
13. Marshall, C. (Principal), & **Olcott Marshall, A.** (Co-Principal). *Examining Enalemoid Chemistry in Lower Vertebrates to Determine Conodont Taxonomic Affinity.* NSF Paleontology and Sedimentology \$114,387, Submitted January 2014. (Refereed/Competitive)
Current Status: Not Funded
12. **Olcott Marshall, A.** (Principal). *The Biogenicity of Early Archean Carbonaceous Material at an Atomic Level.* Simons Foundation, Submitted September 2014.
(Refereed/Competitive)
Current Status: Not Funded
11. **Olcott Marshall, A.** (Principal), & Marshall, C. P. (Co-Investigator). *Field Raman analyses of Mars analog sites: test cases for future rover missions.* NASA: Mars Fundamental Research \$238,657, Submitted June 2013. (Refereed/Competitive)
Current Status: Not Funded
10. **Olcott Marshall, A.** (Principal). *Reservoir Potential of Microbial Carbonates: a pilot study.* American Chemical Society Petroleum Research Fund; New Directions \$120,000, Submitted October 2013. (Refereed/Competitive)
Current Status: Not Funded

9. **Olcott Marshall, A.** (Principal). *CAREER: A Field and Laboratory-based Characterization of Phanerozoic Stromatolites*. NSF Geobiology and Low-temperature Geochemistry \$446,881, Submitted July 2012. (Refereed/Competitive)
Current Status: Not Funded
8. **Olcott Marshall, A.** (Principal), Lieberman, B. S. (Co-Investigator), & Marshall, C. P. (Co-Investigator). *Applying Raman Spectroscopy and the study of Biomarkers to gain insight into Burgess Shale Type Preservation.*, NSF Paleontology and Sedimentology \$254,500, Submitted July 2011.
Current Status: Not Funded
7. **Olcott Marshall, A.** (Principal), & Marshall, C. P. (Co-Principal). *Assessing Biogenicity: New Analytical Tools for an Old Problem.*, NASA Astrobiology \$361,014, Submitted April 2011. (Refereed/Competitive)
Current Status: Not Funded
6. **Olcott Marshall, A.** (Principal), Lieberman, B. S. (Co-Investigator), & Marshall, C. P. (Co-Investigator). *Applying Raman Spectroscopy and the study of Biomarkers to gain insight into Burgess Shale Type Preservation.*, NSF Paleontology and Sedimentology \$237,600, Submitted July 2010.
Current Status: Not Funded
5. **Olcott Marshall, A.** (Principal). *Testing for Terrestrial Influence in the Devonian Mass Extinctions*, NSF Paleontology and Sedimentology \$175,352, Submitted January 2010. (Refereed/Competitive)
Current Status: Not Funded
4. **Olcott Marshall, A.** (Principal). *Chemotaxonomy of Oil Shales: A Novel Approach to Assess the Biology of Organic-Rich Rocks*. American Chemical Society Petroleum Research Fund; New Investigators \$50,000, Submitted October 2009. (Refereed/Competitive)
Current Status: Not Funded

Grant call was canceled before reviews were completed as grant principal fell below funding levels.
3. **Olcott Marshall, A.** (Principal), & Marshall, C. P. (Co-Principal). *Development of a chemotaxonomic tool for resolving the biological affinity of microfossils*. NSF Paleontology and Sedimentology \$422,873, Submitted January 2009. (Refereed/Competitive)
Current Status: Not Funded
2. **Olcott Marshall, A.** (Principal). *The application of paired biomarker analysis and Raman spectroscopy to the Neoproterozoic glacial sediments of the Datangpo and Doushantuo Formations*. NSF Geobiology and Low-temperature Geochemistry \$132,473, Submitted July 2009. (Refereed/Competitive)
Current Status: Not Funded
1. **Olcott Marshall, A.** (Principal), & Marshall, C. P. (Co-Principal). *Development of a*

chemotaxonomic tool for resolving the biological affinity of microfossils. NSF Paleontology and Sedimentology \$189,793, Submitted January 2008. (Refereed/Competitive)
Current Status: Not Funded

Internal Funding

1. **Olcott Marshall, A.** (Principal), & Marshall, C. P. (Co-Principal). *Microscale investigation of the geochemical controls on organic porosity distribution in tight carbonate reservoirs.* Kansas Interdisciplinary Carbonates Consortium Grant \$13,000, Submitted January 2014. (Refereed/Competitive)
Current Status: Funded
2. **Olcott Marshall, A.** (Principal). *Pilot Project: Determining the Biogenicity of Stromatolites.* University of Kansas General Research Fund \$1,500, Submitted February 2013. (Refereed/Competitive)
Current Status: Funded
3. **Olcott Marshall, A.** (Principal). *Studying Biomarkers to Gain Insight into Burgess Shale Type Preservation.* University of Kansas General Research Fund \$2,500, Submitted February 2011. (Refereed/Competitive)
Current Status: Not Funded

D. Patents

Approved Patents

Not applicable

Submitted Patents

Not applicable

E. Honors and Awards for Research

Six of the eighteen major publications I have produced while at KU have been featured by the local, national, and international news sources (Publication#7,8,16,17) or highlighted by the journal of publication (Pubs#12,15).

SERVICE RECORD

A. University of Kansas Service

Department of Geology Service

Department Safety Officer. (2009 - Present)

Head of Search Committee to hire Departmental Teaching Fellow (2013)

Departmental Undergraduate Studies Committee. Member. (2012 - 2013)

Panel Member: Advising graduate students on how to pursue a career in academia. (2012)

Departmental Graduate Admissions Committee. Member. (2008 - 2012)
Panel Member: Advising undergraduate students on how to apply to graduate school. (2010)

College of Liberal Arts and Science Service

College Academic Misconduct Board. Member. (2009 - Present)

University Service

Speaker, "In the Classroom with a KU Professor", Orientation Event (2015)
Graduate Student Research Competition. Faculty Judge. (2015)
Workshop leader, "Motivating Undergraduate Students by Teaching Disciplinary Content through Civic Engagement" Center for Teaching Excellence (2015)
Workshop leader, "Models and Approaches for Course Transformations" Center for Teaching Excellence Annual Teaching Summit (2014)
Grant Reviewer for University Undergraduate Research Award. (2013)
Tour Leader of Multidisciplinary Research Building (including Geobiology facilities) for KU Honors Scholars admitted students, 4 times. (2009 - 2010)
Tour Leader of Geobiology facilities in the Multidisciplinary Research Building for KU Women's Auxiliary Board. (2009)
Graduate Student Research Competition. Faculty Judge. (2008)

B. Professional Service outside the University

Local and State

Prepared materials for outreach event held at Wolf Elementary School, Spring Hill KS (2015)
Describe and contextualize fossils and pseudofossils people email the department, the paleontology program, or me directly for help in identifying (ongoing)

Regional

None

National

NASA 2020 Mars Rover Mission, Reviewer of Research Proposals. (2014)
NSF Geobiology and Low Temperature Geochemistry Division, Reviewer of Research Proposals. (2014)
Division of Geobiology and Geomicrobiology, Geological Society of America, Secretary. (2012 - 2014)
American Chemical Society Petroleum Research Fund, Reviewer of Research Proposals. (2013)
CRDF Global Small Grants Funds (a US Congress mandated grant program to encourage scientific endeavors in the former Soviet Republics), Reviewer of Research Proposals. (2013)
University of Missouri Research Board, Grant Reviewer. (2012)
NASA Astrobiology Institute Grant Review Panel, Invited Panel Member. (2012)
Division of Geobiology and Geomicrobiology, Geological Society of America, Treasurer.

(2010 - 2012)

Geological Society of America Annual Meeting session: New Ideas on Studying Exceptionally Preserved Fossils: What to Do Next?, Co-Convener. (GSA Geobiology & Geomicrobiology Division; Chinese Academy of Sciences; State Key Laboratory of Palaeobiology and Stratigraphy; Nanjing Institute of Geology and Palaeontology)

(2011)

NASA ExoMars Review Panel, Invited Panel Member. (2011)

NASA Mars Science Laboratory Grant Review Panel, Invited Panel Member. (2011)

SEPM Society for Sedimentary Geology Honorary Membership Committee, Member. (2011)

NASA Exobiology Grant Review Panel, Invited Panel Member. (2010)

NASA Exobiology Grant Review Panel, Invited Panel Member. (2008)

International

Astrobiology, Reviewer. (2015 - Present)

Journal Geological Society, Reviewer. (2014 - Present)

Journal of Paleontology, Reviewer. (2014 - Present)

GSA Bulletin, Reviewer. (2013 - Present)

Geochimica Cosmochimica Acta, Reviewer. (2012 - Present)

Journal of Sedimentology, Reviewer. (2012 - Present)

Nature Geoscience, Reviewer. (2012 - Present)

Precambrian Research, Reviewer. (2012 - Present)

Space Science Research, Reviewer. (2012 - Present)

Palaeogeography, Palaeoclimatology and Palaeoecology, Reviewer. (2011 - Present)

Journal of Raman Spectroscopy, Reviewer. (2010 - Present)

Organic Geochemistry, Reviewer. (2008 - Present)

Palaios, Reviewer. (2007 - Present)

Geology, Reviewer. (2006 - Present)

PLoS One, Reviewer. (2006 - Present)

(at all levels, service was performed since my appointment at KU)

C. Honors and Awards for Service

None