

CURRICULUM VITAE OF LILIANA LEFTICARIU

I. PROFESSIONAL AFFILIATION AND CONTACT INFORMATION

A. Present university Department or Unit:

Program Name: Geology

Department Name: Geology

B. Office Address:

Department of Geology

1259 Lincoln Drive, Room 301D

Southern Illinois University

Carbondale, IL 62901

Phone: (618) 453-7373

E-Mail: lefticar@siu.edu

II. EDUCATION

2004-2006: Postdoctoral Research Associate, IPTAI Astrobiology Research Center and Department of Geological Sciences, Indiana University, Bloomington IN

2004: Ph.D., Geochemistry, Northern Illinois University, Dekalb IL

2001: M.S., Geology, Northern Illinois University, Dekalb, IL

1988: B. Sc. Engineering Geology, University of Bucharest, Bucharest, Romania

III. PROFESSIONAL EXPERIENCE

1989-1997: Research Geologist, Rare Metal Company (IMR), Geological Survey, Romania

1998-2004: Research Assistant, Stable Isotope Laboratory, Northern Illinois University, IL, USA

2004-2006: Postdoctoral Research Associate, IPTAI Astrobiology Research Center and Department of Geological Sciences, Indiana University, IN

01/ 2007 to present: Assistant Professor, Geology, Southern Illinois University, Carbondale IL, USA

01/ 2007 to present: Member, Environmental Resources and Policy Program, SIU, IL

IV. RESEARCH AND CREATIVE ACTIVITY

A. Interests and Specialties:

Isotope Geochemistry: I use stable isotope techniques to (1) decipher mechanisms and rates of sulfide oxidation; (2) decode the complex interplay between the abiotic and biological processes in highly acidic environments; (3) apply isotopic, geochemical, and mineralogical proxy data to identify and understand long-term changes in climate and watersheds.

Environmental Sciences: I am involved in couple of projects that evaluate different approaches for acid mine drainage prevention and treatment. Develop and implement innovative concepts for engineered co-management of coal processing waste products.

B. Current Projects: don't duplicate items listed under B, C, and D

(1) Stable isotope geochemistry; (2) Research in coal refuse management; (3) Biochemical weathering of minerals; (4) Low temperature geochemistry of aqueous systems; (5) Chemistry and cycling of sulfur in soils and sedimentary rocks; (6) Radiation chemistry of geologic materials.

C. Grants Applied for: (don't list those received)

Acquisition of an Isotope Ratio Mass Spectrometer for Geochemical, Biological, and Petrologic Research, Education, and Training at Southern Illinois University Carbondale - \$407,335 - National Science Foundation, 01/30/07.

Sulfur and Carbon Isotope Geochemistry of Coal from the Illinois Basin - \$50,000 - ACS Petroleum Research Fund, 02/15/08.

A field demonstration of alternate coal processing disposal technology for sulfate discharge control - \$105,251 - Office of Surface Mining Reclamation and Enforcement, 01/31/2008.

Occurrence, Distribution, and Geochemical Correlations of Trace Elements in Illinois Coal - \$108,657 - Illinois Department of Commerce and Economic Opportunity/Illinois Clean Coal Institute, 03/30/2009.

Preliminary Investigation of Carbon Sequestration via Iron Carbonates Formation - \$49,996 - Illinois Department of Commerce and Economic Opportunity/Illinois Clean Coal Institute, 03/31/2010.

Improved Sulfate-Reducing Bioreactors for the Remediation of High Total Dissolved Solids Drainage Associated with Coal Mining and Processing in the U.S. - \$175,488 - Office of Surface Mining Reclamation and Enforcement, 01/31/2010.

Cyclic Leaching of Coal Combustion Byproducts and Opportunities for Coal Mine Applications - \$2,500 - American Society of Mining and Reclamation, 03/15/2010.

Experimental Investigation of Carbon Sequestration via Ferrous Carbonate Formation - \$99,942 - ACS Petroleum Research Fund, 03/18/2011.

Synchysite and other rare earth minerals within the Illinois-Kentucky Fluorspar District; Implications for a carbonatite complex and potential economic accumulations of rare earth elements in the Midwest, USA - \$5,000 – Mineral Resources External Research Program (MRERP), U.S. Geological Survey, 05/11/2011.

D. Grants Received (\$823,427 total support):

Stable isotope partitioning during sulfide oxidation and its applications to Astrobiology - \$600 - SIUC Joint Women's Studies, 6/1/07-9/30/07.

Distribution and mode of occurrence of sulfur and trace elements in Illinois coal - \$39,986 - Illinois Clean Coal Institute, 10/1/08-09/30/08.

Stable isotopic fractionation patterns as indicators of oxidation mechanisms of iron sulfide minerals - \$19,983 - SIUC Faculty Seed Grant, 7/15/07-8/15/08.

Integrated study of mercury and other trace elements distribution in Illinois coal - \$84,995 - Illinois Clean Coal Institute, 1/1/09-12/31/09.

Acquisition of an Isotope Ratio Mass Spectrometer for Geochemical, Biological, and Petrologic Research, Education, and Training at Southern Illinois University Carbondale - \$407,335 - National Science Foundation, 1/6/09-31/05/13.

Improved sulfate-reducing bioreactors for the remediation of high total dissolved solids drainage associated with coal mining and processing in the U.S. - \$190,541 - Office of Surface Mining Reclamation and Enforcement, 1/2/12-31/8/13.
Field Demonstration of Alternate Coal Processing Waste Disposal Technology- \$79,987 Illinois Clean Coal Institute, 1/9/12-31/05/13.

E. Honors and Awards:

- NASA Post-Doctoral Fellowship: 2004, 2005, 2006.

F. Papers and Presentations at Professional Meetings:

1. Presentations at Meetings:

* Author is a student working with Dr. Lefticariu Liliana.

1. McLeran*, K., Therrell, M., **Lefticariu, L. (2012)** Oxygen isotope analysis in tree-rings of *Pterocarpus Angolensis* in Zimbabwe. AGU Fall Meeting, San Francisco, 3-7 December 2012. <http://fallmeeting.agu.org/2012/>
2. Walters*, E.R., Pugh, C.W., Bender, K.S., **Lefticariu, L. (2012)** Geochemical and microbial community dynamics of a remediation system treating coal-derived mine drainage. GSA Annual Meeting, in Charlotte, North Carolina, 4–7 November 2012. <https://gsa.confex.com/gsa/2012AM/dis/papers/index.cgi?username=211762&password=674645>
3. **Lefticariu, L.**, Walters*, E.R., Pugh, C.W., Bender, K.S. (2012) Stable isotope and microbial indicators of sulfur cycle pathways in an AMD treatment system. GSA Annual Meeting, in Charlotte, North Carolina, 4–7 November 2012. <https://gsa.confex.com/gsa/2012AM/dis/papers/index.cgi?username=211095&password=186336>
4. **Lefticariu, L.**, Behum*, P.T. Jr., Pugh, C.W., Bender, K.S. (2012) Remediation of Coal-Mine Drainage by Sulfate-Reducing Bioreactor. The 22th Annual Goldschmidt Conference, June 24-29, 2012, Montreal, Canada. <http://www.vmgoldschmidt.org/2012/index.htm>
5. Pugh, C.W., Burns, A.S., Behum*, P.T. Jr., **Lefticariu, L.**, Bender, K.S. (2012) Community Analysis of a Sulfate-Reducing Bioreactor Treating Coal Generated Acid-Mine Drainage. The 112th General Meeting of the American Society for Microbiology, June 16 - 19, 2012, San Francisco, USA. http://www.asm.org/images/asm2012_finalprogram_webv.pdf
6. Denny, B.F., **Lefticariu, L.**, Freiburg, J.T., Rızaoğlu, T., Uras, Y. (2012) Oxygen and Carbon isotopic variations of Lower Chesterian Limestones of the Illinois Basin and the Illinois-Kentucky Fluorite District. The 5th International Geochemistry Symposium, May 23-25, 2012, Denizli, Turkey. <http://pau.edu.tr/jeokimyasemp/en/>
7. Behum*, P.T. Jr., **Lefticariu, L.**, Bender, K.S., Lewis, L., Segid*, Y.T., Burns, A.S., Pugh, C.W., (2012) Passive treatment of coal-mine drainage by a sulfate-reducing bioreactor: A case study from the Illinois coal basin, USA. The 9th International Conference on Acid Rock Drainage, May 20 - 26, 2012, Ottawa, Ontario Canada. <http://www.icard2012.ca/index.html>
8. Behum*, P.T. Jr., Chugh, Y. P., **Lefticariu, L. (2012)** Preliminary Results of Simulated Weathering of Coal Stockpiles and Coal Refuse Disposal Areas. The 9th International

Conference on Acid Rock Drainage, May 20 - 26, 2012, Ottawa, Ontario Canada.
<http://www.icard2012.ca/index.html>

9. Behum*, P.T. Jr., Lewis, L., Kiser, R., and **Lefticariu, L. (2012)** Remediation of Acid Mine Drainage using Sulfate-reducing Bioreactors - Case Example: the Tab-Simco Passive Treatment System. The 29th Annual Meeting of the American Society of Mining Reclamation – “Sustainable Reclamation” 8 - 15 June, 2012, Tupelo, Mississippi USA.
<http://www.asmr.us/Meetings/2012/ASMR%2029th%20Annual%20Meetings.pdf>
10. Chugh, Y. P., Behum*, P.T. Jr. **Lefticariu, L., (2011)** Alternate Coal Processing Waste Disposal Technology. Illinois Mining Institute 119th Annual Meeting, August 30-31, 2011, Williamson County Pavilion, Marion, Illinois, USA.
<http://www.coalage.com/index.php/calendar/1-coal-age/57-illinois-mining-institute-119th-annual-meeting.html>
11. Denny, B.F., Guillemette, R., N., **Lefticariu, L. (2011)** Rare earth mineral concentrations within fluorite in the Illinois-Kentucky Fluorite District and igneous intrusives at Hicks Dome Cryptoexplosive Complex, SE Illinois and NW Kentucky (USA). The 47th Forum on the Geology of Industrial Minerals May 15-17, 2011, Champaign, IL.
<http://www.isgs.illinois.edu/sections/indust-min/im-home.shtml>
12. Behum*, P.T., **Lefticariu L.,** Segid*, Y.T., Bender, K.S., Pugh, C.W., Burns, A.S. (2011) Remediation of coal-mine drainage by a sulfate-reducing bioreactor: A case study from the Illinois coal basin, USA. Geochemistry of the Earth's Surface (GES9). June 3-7, 2011, Boulder, Colorado, USA. <http://instaar.colorado.edu/meetings/GES-9/>
13. **Lefticariu, L. (2010)** Biogeochemical evaluation of a passive acid mine drainage treatment system from Illinois, USA. SEGR-2010 – "MINERAL RESOURCES OF CARPATHIANS AREA" – 7th International Symposium on Economic Geology, September 10 – 11, Baia Mare, Romania.
14. **Lefticariu, L.,** Blum, J. D., Gleason, J. D. (2010) Mercury Isotopes in Illinois Basin Coal: Organic and Inorganic Constituents. The 20th Annual Goldschmidt Conference, June 13 – 18, Knoxville, Tennessee.
<http://www.goldschmidt2010.org/abstracts/abstractView?abstractId=1325>
15. Segid*, Y.T., Behum*, P.T., Bender, K.S., Pugh, C.W., Burns, A.S. & **Lefticariu L (2010)** Geochemical and Microbial Evaluation of the Tab Simco Treatment System. The 20th Annual Goldschmidt Conference, June 13 – 18, Knoxville, Tennessee.
<http://www.goldschmidt2010.org/abstracts/abstractView?abstractId=3150>
16. Behum*, P.T. Jr., Chugh, Y. P., Segid*, Y.T., **Lefticariu, L., (2010)** Results of Simulated Weathering of Coal Stockpiles and Coal Refuse Disposal Areas. The 20th Annual Goldschmidt Conference, June 13 – 18, Knoxville, Tennessee.
<http://www.goldschmidt2010.org/abstracts/abstractView?abstractId=3057>
17. Pugh, C.W., Segid*, Y.T., Behum*, P.T., Burns, A.S., Bender, K.S., & **Lefticariu L (2010)** Community analysis of the acid mine drainage from an abandoned Tab Simco coal mine. Undergraduate Research Forum, Student Center Ballrooms, March 26, 2010, Southern Illinois University Carbondale.
18. **Lefticariu, L. (2009)** Oxidation of sulfide minerals: from acid mine drainage to life on Mars. Scientific session “Mineralogy and Geodiversity” dedicated to the 70th anniversary of Professor Dr. Emil Constantinescu, October 30-31, Bucharest, Romania.

19. Rahman*, M.W., Singh*, R., *Lefticariu, L.*, (2009) Concentration and distribution of trace elements in coals from Illinois Basin. GSA Abstracts with Programs, v.41, no. 7, A121-7. http://gsa.confex.com/gsa/2009AM/finalprogram/abstract_160592.htm
20. Singh*, R., Rahman*, M.W., *Lefticariu, L.*, (2009) Sulfur in Illinois Coal. GSA Abstracts with Programs, v.41, no. 7, A121-6. http://gsa.confex.com/gsa/2009AM/finalprogram/abstract_160594.htm
21. *Lefticariu, L.*, Rahman*, M.W., Singh*, R., (2009) Distribution and mode of occurrence of mercury and sulfur in Illinois coal. The 26th Annual International Pittsburgh Coal Conference, Pittsburgh, PA, September 20 – 23. <http://www.engr.pitt.edu/pcc/>
22. *Lefticariu, L.*, Behum*, P.T. Jr., Chugh, Y. P., (2009) Geochemical Evaluation of Coal Processing Facility Drainage: Preliminary Results of Kinetic Testing. The 19th Annual Goldschmidt Conference, June 21 – 26, Davos, Switzerland. <http://www.goldschmidt2009.org/abstracts/L.pdf>
23. *Lefticariu, L.*, Behum*, P.T. Jr., Bender, K.S., Burns, A.S., Pugh, C.W. (2009) Biogeochemical Evaluation of the Tab Simco Mine Drainage Treatment System. GSA North-Central Section, GSA meeting in Rockford, IL, 2-4 April 2009. <http://www.geosociety.org/sectdiv/Northc/09mtg/index.htm>
24. Singh*, R., *Lefticariu, L.*, (2009) Distribution and Mode of Occurrences of Sulfur and Trace Elements in Illinois Coal. GSA North-Central Section, GSA meeting in Rockford, IL, 2-4 April 2009. <http://www.geosociety.org/sectdiv/Northc/09mtg/index.htm>
25. Behum*, P.T. Jr., Chugh, Y. P., Teklehaimanot*, Y., *Lefticariu, L.*, (2009) Geochemistry of Coal Mine Drainage in Response to Improved Material Handling: Preliminary Results of Kinetic Testing. GSA North-Central Section, GSA meeting in Rockford, IL, 2-4 April 2009. <http://www.geosociety.org/sectdiv/Northc/09mtg/index.htm>
26. *Lefticariu, L.*, Pratt, L. M., Onstott, T.C., (2008) Sulphate Formation on Mars by Radiolytic Oxidation of Sulphide Minerals. The 18th Annual Goldschmidt Conference, July 13 – 18, Vancouver, Canada. <http://www.goldschmidt2008.org/abstracts/L.pdf>
27. *Lefticariu, L.*, (2008) What can we learn from studying sulfate minerals on Earth about surface processes on Mars? Simpozion Național de Geologie și Geofizică GEO 2008, May 23 – 24, Bucharest, Romania. http://www.unibuc.ro/uploads_ro/44056/Program_G2008.pdf
28. *Lefticariu, L.*, Crelling, J.C., Atudorei, V. (2008) Carbon and sulfur isotope geochemistry of Illinois No. 5 coal. North-Central Section, GSA meeting in Evansville, IN, 24-25 April 2008. <http://www.geosociety.org/sectdiv/Northc/08mtg/index.htm>
29. Raymond, R., Sigman, D., Mislowack, B., Onstott, T.C., Pratt, L. M., *Lefticariu, L.* (2008) Radiolytic destruction of NH₃ as a subsurface source of NO₃ and ultimately N₂. Astrobiology Science Conference 2008, SETI Institute, Santa Clara, California, April 14-17, 2008. <http://abscicon.seti.org/>
30. *Lefticariu, L.*, Schimmelmann, A., Pratt, L. M., and Ripley, E. M. (2007) Oxygen and sulfur isotope fractionation associated with pyrite oxidation by H₂O₂. The 9th ESIR Conference, Studia Universitatis Babeș-Bolyai Geologia, vol. 52, No. 1, p. 45. http://bioge.ubbcluj.ro/studia/pdf/2007/2007_1.pdf
31. *Lefticariu, L.*, Pratt, L. M., and Ripley, E. M., and LaVerne, J. (2007) Radiolytic oxidation of pyrite by gamma radiation. Geological Society of America Abstracts with Programs, Vol. 39, No. 6, p. 14. http://gsa.confex.com/gsa/2007AM/finalprogram/abstract_123149.htm

32. **Lefticariu, L., Pratt, L. M., and Ripley, E. M. (2006)** Radiolytic oxidation of pyrite: a possible source of sulfate on Mars? Workshop on Martian Sulfates as Recorders of Atmospheric -Fluid-Rock Interactions, October 22–24, 2006, Houston, Texas, USA. <http://www.lpi.usra.edu/meetings/sulfates2006/>
33. **Lefticariu, L., Pratt, L. M., and Ripley, E. M. (2006)** Stable Isotope Study of Radiolytic Oxidation of Pyrite. The 3rd International Symposium on Isotopomers, 27 – 31 August, University of California, San Diego, La Jolla, California, USA. <http://isi2006.ucsd.edu/>
34. **Pratt, L. M., Lefticariu, L., Ripley E. M., and Onstott, D. L. (2006)** Radiolysis of Earth Materials. The 16th Annual Goldschmidt Conference, August 27 - September 1, Melbourne, Australia. <http://www.goldschmidt2006.com/>
35. **Perry, E. C. and Lefticariu, L. (2006)** The oxygen isotopic composition of Precambrian chert. The 16th Annual Goldschmidt Conference, August 27 - September 1, Melbourne, Australia. <http://www.goldschmidt2006.com/>
36. **Lefticariu, L., Pratt, L. M., LaVerne, J A., and Ripley, E. M. (2006)** Experimental study of radiolytic oxidation of pyrite: implications for Mars relevant crustal processes. The 37th Lunar and Planetary Science Conference, Houston, Texas. <http://www.lpi.usra.edu/meetings/lpsc2006/pdf/1953.pdf>
37. **Lefticariu, L., Pratt, L. M., Eng, P. J., Gose, S. K., and Bish, D. L. (2006)** Interaction of radiolytically produced oxidants with the pyrite surface: a Crystal Truncation Rod (CTR) study. The 37th Lunar and Planetary Science Conference, Houston, Texas. <http://www.lpi.usra.edu/meetings/lpsc2006/pdf/2167.pdf>
38. **Lefticariu, L., Pratt, L. M., Ripley, E. M., and Schimmelmann, A. (2006)** Experimental investigation of radiolytic oxidation of elemental sulfur and its relevance to Europa. Europa Focus Group. NASA Ames Research Center, Moffett Field California. <http://astrobiology.asu.edu/focus/europa/discuss/discuss.html>
39. **Lefticariu, L., Pratt, L. M., LaVerne, J A., and Ripley, E. M. (2005)** Multiple Reaction Pathways during Radiolytic Oxidation of Pyrite. *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract P42B-03. http://www.agu.org/meetings/fm05/fm05-sessions/fm05_P42B.html
40. **Fischer, M. P., Lefticariu, L., Romanek, C., and Perry, E.C. (2005)** Kinematics of fibrous vein growth: insights from stable isotope analyses. *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract T53C-1456. http://www.agu.org/meetings/fm05/fm05-sessions/fm05_T53C.html
41. **Lefticariu, L., Pratt, L. M., and Ripley, E. M. (2005)** Pyrite oxidation using millimolar H₂O₂ as an analog for radiation-induced chemical reactions in groundwater. Annual GSA Meeting, Salt Lake City, Utah, USA. http://gsa.confex.com/gsa/2005AM/finalprogram/abstract_95071.htm
42. **Lefticariu, L., Pratt, L. M., Ripley E. M., and Bish, D. L. (2005)** Experimental study of sulfur isotope fractionation associated with pyrite oxidation by H₂O₂. The 15th Annual Goldschmidt Conference, Moscow, Idaho, USA. http://www.theconference.com/2005/gold2005/Gold05_Prog_21.pdf
43. **Lefticariu, L., Pratt, L. M., Ripley E. M., and Bish, D. L. (2005)** Unexpected sulfur isotope fractionation associated with pyrite oxidation by hydrogen peroxide at temperatures from 4 to 150°C. NASA Astrobiology Institute Biennial Meeting, Boulder, CO. <http://www.liebertonline.com/doi/abs/10.1089/ast.2005.5.275>

44. **Lefticariu, L. (2005)** Is There any Relationship Between the Santa Elena Depression and Chicxulub Impact Crater, Northwestern Yucatan Peninsula, Mexico? AGU Joint Assembly, 23-27 May, New Orleans, Louisiana, USA.
http://www.agu.org/meetings/sm05/sm05-sessions/sm05_P12A.html
45. Lefticariu M., Perry, E. C., **Lefticariu, L.**, and Ward, W. (2004) Diagenetic evolution of the Cenozoic Formations associated with the Chicxulub impact crater, Northwestern Yucatan Peninsula, Mexico. The 35th Lunar and Planetary Science Conference, Houston, Texas.
<http://www.lpi.usra.edu/meetings/lpsc2004/pdf/1083.pdf>
46. Perry, E. C. and **Lefticariu, L.** (2004) Gypsum-anhydrite transition: a source of water during diagenesis? 14th Annual Goldschmidt Geochemistry Conference, Copenhagen, Denmark. <http://www.goldschmidt2004.dk/>
47. **Lefticariu, L.**, Perry, E. C., Fischer, M. P., and Higuera, C. I. (2003) Fluid flow and deformation during evaporite-detached folding of Cupido Formation, NE Mexico derived from stable isotope and trace element patterns. GSA Abstracts with Programs Vol. 35, No. 6, A 98-8. http://gsa.confex.com/gsa/2003AM/finalprogram/abstract_65587.htm
48. Fischer, M. P., Higuera-Diaz, C. I., **Lefticariu, L.**, and Perry, E. C. (2003) Relations between folding, fractures, fluids, and stratigraphy in the Mexican Sierra Madre Oriental. GSA Abstracts with Programs Vol. 35, No. 6, A. 246-2.
http://gsa.confex.com/gsa/2003AM/finalprogram/abstract_63691.htm
49. Higuera-Diaz, I. C., Fischer, M. P., Wilkerson, M.S., Perry, E.C., and **Lefticariu, L.** (2003) Three-dimensional geometry and mechanical stratigraphy of a plunging detachment folds in the Monterrey salient, NE Mexico. GSA Abstracts with Programs Vol. 35, No. 6, A. 261-3. http://gsa.confex.com/gsa/2003AM/finalprogram/abstract_67640.htm
50. Lefticariu M., Perry, E. C., and **Lefticariu, L.** (2003) Diagenetic evolution of the Cenozoic Formations associated with the Chicxulub impact crater, Northwestern Yucatan Peninsula, Mexico. SWICA Meeting, March 29-April 3, Merida, Yucatan, Mexico.
<http://www.olemiss.edu/sciencenet/saltnet/swica2/swica2.html>
51. Fischer, M. P., Higuera-Diaz, C. I, **Lefticariu, L.**, Perry, E. C., and Evans, M. E. (2002) Fluid migration during salt-detached folding in NE Mexico. Abstract in: Oil and Gas in Compressional Belts. Joint meeting of the Tectonic Studies Group and Petroleum Group, Geological Society of London, London. <http://earth.leeds.ac.uk/ogcb/programme.htm>
52. **Lefticariu, L.**, Perry, E. C., Fischer, M. P., Evans M. E. and Fong, J. (2002) Isotopic and Petrographic Evidence of Thermochemical Sulfate Reduction, Sierra Madre Oriental, Mexico. GSA Abstracts with Programs, v. 34 (6), A 153-6.
http://gsa.confex.com/gsa/2002AM/finalprogram/abstract_44276.htm
53. Higuera-Diaz, C. I., Fischer, M. P., **Lefticariu, L.**, Perry E. C., and Evans, M. E. (2002) Fracture-controlled fluid migration in a detachment fold: an example from the Mexican Sierra Madre Oriental. GSA Abstracts with Programs, v. 34, no. 6, A. 165-17.
http://gsa.confex.com/gsa/2002AM/finalprogram/abstract_41812.htm
54. Lefticariu, M., Perry, E. C., Ward W., **Lefticariu, L.** (2002) Diagenetic evolution of the Cenozoic Formations associated with the Chicxulub impact crater, Northwestern Yucatan Peninsula, Mexico. GSA Abstracts with Programs, v. 34, no. 6, A 142-3.
http://gsa.confex.com/gsa/2002AM/finalprogram/abstract_43742.htm
55. Perry, E. C., **Lefticariu, L.**, Fischer, M. P., and Higuera-Diaz, C. I. (2001) Oxygen isotope thermometry of quartz–calcite veins from the Nuncios fold complex, Monterrey Salient,

Mexico. GSA Abstracts with Programs, v.33, no. 6, A238.

http://gsa.confex.com/gsa/2001AM/finalprogram/abstract_28396.htm

56. **Lefticariu, L.**, Romanek, C. S., Perry, E. C., and Fischer, M. P. (2001) Millimeter-scale variations in carbon and oxygen isotopes: new insights on vein growth mechanisms and plumbing systems of fault-related folds. GSA Abstracts with Programs, v.33, no. 6, A26. http://gsa.confex.com/gsa/2001AM/finalprogram/abstract_27937.htm
57. **Lefticariu, L.** (2001) Integrated structural and isotopic analysis of vein and host rock from Nuncios Detachment Fold Complex, Monterrey Salient, Mexico. AAPG Foundation Grants-In-Aids Recipients. AAPG Bulletin, v.85 (11), 2054-2055.
58. **Lefticariu, L.**, Perry, E. C., and Fischer, M. P. (2000) Structural and stable isotope analysis of veins and host rocks from the Nuncios Fold Complex, Sierra Madre Oriental, Mexico. GSA Abstracts with Programs, v.32, no. 7, A7. <http://rock.geosociety.org/docs/absindex/annual/2000/52024.htm>

G. Other:

2. Invited Seminar:

- 07/18/2012:** “*Coal Utilization II: Trace elements and mercury. Power plant emissions problems*”. Coal Geology Short Course, at Southern Illinois University, Carbondale, IL.
- 05/14/2012:** “*Passive Systems for Treating Acid Mine Drainage*”. Geology and Geophysics Department, Bucharest University, Romania.
- 02/23/2012:** “*Oxidation of sulfide minerals: from acid mine drainage to life on Mars*”. Invited presentation Spring 2012 Colloquia at University of South Carolina, Columbia, SC.
- 02/10/2011:** “*Oxidation of sulfide minerals: from acid mine drainage to life on Mars*”. Invited presentation Spring 2011 Colloquia at Central Michigan University, Mount Pleasant, MI.
- 04/09/2011:** “*Earth's Water: Water On and Under the Ground*”. Three presentations for Saluki Bassers Open House at Southern Illinois University, Carbondale, IL.
- 06/15/2010:** “*Mercury Isotopes in Illinois Basin Coal: Organic and Inorganic Constituents*” Invited speaker @: New Horizons in Coal Science: Organic Petrology, Geochemistry, and Environmental Effects, Goldschmidt Conference, Knoxville, Tennessee.
- 11/06/2010:** “*Mercury in the Environment: a geochemical perspective*”. ERP Seminar Series, Southern Illinois University, Carbondale IL.
- 11/13/2010:** “*The Challenges of a Changing Planet*” SIUC Expanding Your Horizons Conference, Southern Illinois University, Carbondale IL.
- 02/19/2010:** “*Oxidation of Sulfide Minerals: From Acid Mine Drainage to Life on Mars*”. Invited presentation Spring 2010 Colloquia at Northern Illinois University, DeKalb IL.
- 02/10/2010:** “*Oxidation of Sulfide Minerals: From Acid Mine Drainage to Life on Mars*”. Invited speaker @: The College of Science Living and Learning Community (LLC) Students at Felts Hall
- 5/24/2008:** “*Radiolytic oxidation of pyrite: a possible source of sulfate on Mars?*” Geology and Geophysics Department, Bucharest University, Romania.
- 3/26/2008:** “*What can we learn from studying sulfate minerals on Earth about surface processes on Mars?*” SIUC Celebrating Scholarship By and About Women Panel, Southern Illinois University, Carbondale IL.

- 1/24/2006: “Radiolytic oxidation of pyrite by gamma radiation”. Department of Geology, Southern Illinois University, Carbondale IL.
- 8/8/2005: “Experimental study of sulfur isotope fractionation associated with pyrite oxidation by H_2O_2 ”. Forum for Astrobiology Research (FAR) Series. Webcast NASA Astrobiology Institute Seminar. <http://nai.arc.nasa.gov/seminars/index.cfm>
- 1/31/2005: “Gypsum-anhydrite transition: a source of water during diagenesis?” Department of Geological Sciences, Indiana University, Bloomington IN.
- 10/4/2002: “Fluid migration during salt-detached folding in Northeastern Mexico”. Department of Geology, Northern Illinois University, DeKalb IL.

V. PUBLICATIONS AND CREATIVE WORKS

A. Books: none.

B. Articles in Professional Journals:

1. Peer Reviewed Publications – Published while Assistant Professor at SIUC

* Author is a student working with Dr. Lefticariu Liliana.

1. Perry, E. C., *Lefticariu, L.* Formation and geochemistry of Precambrian cherts. In: **Treatise on Geochemistry, 2nd Edition**; (*in press*).
2. Denny, B.F., Guillemette, R., N., *Lefticariu, L.* Rare earth mineral concentrations in ultramafic alkaline rocks and fluorite within the Illinois-Kentucky Fluorite District. (*in press*).
3. Burns, A.S., Pugh, C.C., Behum*, P.T., Segid*, Y.T., *Lefticariu L.*, Bender, K.S. (2012) Microbial community dynamics of a sulfate-reducing bioreactor treating coal generated acid mine drainage. *Biodegradation* 23 (3), 415-429 <http://dx.doi.org/10.1007/s10532-011-9520-y>
4. Silver, B.J., Raymond, R., Sigman, D.M., Prokopeko, M., Sherwood Lollar, B., Lacrampe-Couloume, G., Fogel, M. L., Pratt, L. M., *Lefticariu L.*, and Onstott T.C. (2012) The origin of NO_3^- and N_2 in deep subsurface fracture water of South Africa. *Chemical Geology* 294-295, 51-62. <http://dx.doi.org/10.1016/j.chemgeo.2011.11.017>
5. Behum*, P.T., *Lefticariu L.*, Segid*, Y.T., Bender, K.S., Pugh, C.C., Burns, A.S. (2011) Remediation of coal-mine drainage by a sulfate-reducing bioreactor: A case study from the Illinois coal basin, USA. *Applied Geochemistry* 26 (1), 162-166. <http://dx.doi.org/10.1016/j.apgeochem.2011.03.093>
6. *Lefticariu, L.*, Blum, J. D., Gleason, J. D. (2011) Mercury Isotopic Evidence for Multiple Mercury Sources in Coal from the Illinois Basin. *Environmental Science and Technology* 45, 1724–1729. <http://pubs.acs.org/doi/full/10.1021/es102875n>
7. *Lefticariu, L.* (2010) Biogeochemical evaluation of a passive acid mine drainage treatment system from Illinois, USA. *Romanian Journal of Mineral Deposits* 84, 101-108. http://rjmd.igr.ro/files/7th_Symposium_SEGR_2010.pdf
8. *Lefticariu, L.*, Pratt, L. M., LaVerne, J. A., Schimmelmann, A. (2010) Radiolysis of water coupled to oxidation of pyrite as a source of biosustaining energy. *Earth and Planetary Science Letters* 292 (1-2), 57-67. <http://dx.doi.org/10.1016/j.epsl.2010.01.020>

9. Fischer, M. P., Higuera-Diaz, C. I., Evans, M. E., Perry, E. C., and **Lefticariu, L. (2009)** Fracture-controlled paleohydrology in a map-scale detachment fold: insights from the analysis of fluid inclusions in calcite and quartz veins. *Journal of Structural Geology* 31 (12), 1490-1510. <http://dx.doi.org/10.1016/j.jsg.2009.09.004>
10. **Lefticariu, L., (2009)** Oxidation of sulfide minerals: from acid mine drainage to life on Mars. Special Publication “Mineralogy and Geodiversity” dedicated to the 70th anniversary of Professor Dr. Emil Constantinescu, 8 pp.
11. **Lefticariu, L., Schimmelmann, A., Pratt, L. M., and Ripley, E. M. (2007)** Oxygen isotope fractionation during oxidation of pyrite by H₂O₂ and its dependence on temperature. *Geochimica et Cosmochimica Acta* 71 (21), 5072–5088. <http://dx.doi.org/10.1016/j.gca.2007.08.022>

2. Peer Reviewed Publications – – Published before joining SIUC

12. **Lefticariu, L., Pratt, L. M., and Ripley, E. M. (2006)** Mineralogical and sulfur isotope effects accompanying the oxidation of pyrite in millimolar solutions of hydrogen peroxide at temperatures from 4 to 150 °C. *Geochimica et Cosmochimica Acta* 70 (19), 4889-4905. <http://dx.doi.org/10.1016/j.gca.2006.07.026>
13. **Lefticariu, L., Pratt, L. M., LaVerne, J.A., and Ripley, E. M. (2006)** Radiolytic oxidation of pyrite: a viable mechanism for sulfate production on Mars? In Workshop on Martian Sulfates as Recorders of Atmospheric -Fluid-Rock Interactions, p. 73-76. *LPI Contributions No. 1331*, Lunar and Planetary Institute, Houston. <http://www.lpi.usra.edu/meetings/sulfates2006/>
14. **Lefticariu, L., Pratt, L. M., Eng, P. J., Gose, S. K., and Bish D. L. (2006)** Interaction of radiolytically produced oxidants with the pyrite surface: a Crystal Truncation Rod (CTR) study. *Lunar and Planetary Science*, vol. XXXVII, 2167-2168. <http://www.lpi.usra.edu/meetings/lpsc2006/pdf/2167.pdf>
15. **Lefticariu, L., Pratt, L. M., LaVerne, J A., and Ripley E. M. (2006)** Experimental study of radiolytic oxidation of pyrite: implications for Mars relevant crustal processes. *Lunar and Planetary Science*, vol. XXXVII, 1953-1954. <http://www.lpi.usra.edu/meetings/lpsc2006/pdf/1953.pdf>
16. **Lefticariu, M., Perry, E. C., Ward, W., and Lefticariu L. (2006)** Post-Chicxulub depositional and diagenetic history of the northwestern Yucatan Peninsula, Mexico. *Sedimentary Geology*, 183(1-2), 51-69. <http://dx.doi.org/10.1016/j.sedgeo.2005.09.008>
17. **Lefticariu, L., Perry, E. C., Fischer, M. P., and Banner, J. (2005)** Evolution of fluid compartmentalization in a detachment fold complex. *Geology*, 33(1), 69-72. <http://dx.doi.org/10.1130/G20592.1>
18. **Lefticariu, M., Perry, E. C., Lefticariu L., Ward W. (2004)** Diagenetic evolution of the Cenozoic Formations associated with the Chicxulub impact crater, Northwestern Yucatan Peninsula, Mexico. *Lunar and Planetary Science*, vol. XXXV, 1083-1084. <http://www.lpi.usra.edu/meetings/lpsc2004/pdf/1083.pdf>

3. Peer Reviewed Conference Proceedings

19. Behum*, P.T. Jr., **Lefticariu, L., Bender, K.S., Lewis, L., Segid*, Y.T., Burns, A.S., Pugh, C.C., (2012)** Passive treatment of coal-mine drainage by a sulfate-reducing bioreactor: A

- case study from the Illinois coal basin, USA. Proceedings of the 9th International Conference on Acid Rock Drainage, CD-ROM. <http://www.icard2012.ca/>
20. *Lefticariu, L.*, Rahman*, M.W., Singh* R., (2009) Distribution and mode of occurrence of mercury and sulfur in Illinois coal. Proceedings to the 26th Annual International Pittsburgh Coal Conference, CD-ROM. <http://www.engineering.pitt.edu/PCC/>
 21. Lefticariu, M., Perry, E. C., *Lefticariu, L.* (2003) Diagenetic evolution of the Cenozoic Formations associated with the Chicxulub impact crater, Northwestern Yucatan Peninsula, Mexico. In: L. Marin and A. H.-D. Cheng (Eds), Proceedings to the 2nd International Conference and Workshop on *Saltwater Intrusion and Coastal Aquifers: Monitoring, Modeling, and Management*, vol. 1, 121-127. <http://www.olemiss.edu/sciencenet/saltnet/swica2/Lefticariu.pdf>

C. Creative Contributions:

1. Technical Reports

22. *Lefticariu, L.* (2009) Integrated Study of Mercury and Other Trace Elements Distribution in Illinois Coal. Final report to Illinois Clean Coal Institute, December 2009, 44 pp. <http://www.icci.org/reports.php>
23. *Lefticariu, L.* (2008) Distribution and mode of occurrence of sulfur and trace elements in Illinois coal. Final report to Illinois Clean Coal Institute, December 2008, 20 pp. <http://www.icci.org/reports.php>

2. Theses

24. *Lefticariu, L.* (2004) Geochemical constraints on the evolution of the fluid-rock system in the salt-detached Nuncios Fold Complex, Mexico. **Ph. D. Dissertation**, Northern Illinois University, DeKalb Il, 385 pg.
25. *Lefticariu, L.* (1988) Gold deposits in metamorphic terrains: Examples from the Southern Carpathian Mountains, Romania. Unpublished BSc thesis (in Romanian), University of Bucharest, Bucharest, Romania, 116 pg.

D. Chapters in Professional Books:

26. Perry, E. C., *Lefticariu, L.* (2007) Formation and geochemistry of Precambrian cherts. In: **Treatise on Geochemistry** (Online Updated Edition); H. Holland and K. Turekian (Eds.) Volume 7, Sediments, Diagenesis, and Sedimentary Rocks; F.T. MacKenzie (Ed.), 99-113. <http://www.treatiseongeochemistry.com/>
27. Perry, E. C. and *Lefticariu, L.* (2003) Formation and geochemistry of Precambrian cherts. In: **Treatise on Geochemistry** (1st printed edition); H. Holland and K. Turekian (Eds.) Volume 7, Sediments, Diagenesis, and Sedimentary Rocks; F.T. MacKenzie (Ed.), 99-113. <http://www.sciencedirect.com/science/referenceworks/0080437516>

E. Popular and Creative Writing:

28. *Lefticariu, L. (2012)* Nurturing connections across geochemistry. The International Innovation, North America, October 2012.
<http://www.research-europe.com/index.php/international-innovation/>

F. Book Reviews:

Book chapters for the new McGraw-Hill Textbook: “*Environmental Geology*” First Edition by James Reichard (2008).

Book chapters for the new Bentham Science Publishers E -Textbook: “*Earth – our habitable planet*” First Edition by Bentham Science Publishers (2012).

G. Other:

VI. TEACHING EXPERIENCE

A. Teaching Interests and Specialties:

- Stable Isotope Geochemistry,
- Geochemistry of Natural Waters,
- Planetary Geology,
- Environmental Sciences,
- Earth and Planetary Sciences for Middle and High School Teachers.

B. Teaching and Training Grants: none

C. Teaching Awards and Honors:

Award/Honor, Date Received

D. Current Graduate Faculty Status:

Graduate

E. Number of Master’s and Ph.D. Committees on which you have served:

13 M.Sc. and 4 Ph.D.

F. Names of Students who have completed Master’s Theses and Doctoral Dissertations under your Direction:

Rajesh Singh, M.S. Student (Department of Geology): graduated in 2011 (now Ph D student at Miami University Oxford, OH)

Yosief T. Segid, M.S. Student (Department of Geology): graduated in 2010 (now Geologist at DHI Services)

G. Other :

1. Courses taught at Southern Illinois University (2007-date)

Geol 111 – Geology and the Environment (Fall 2007; Spring 2008; Summer 2008; Fall 2009)

Geol 330 – The Planets (Spring 2009; Spring 2010, Spring 2011; Spring 2012)

Geol 416 – Geochemistry of Natural Waters (Spring 2008; Fall 2010; Fall 2012)
Geol 417 – Isotope Geochemistry (Spring 2007, Fall 2008, Fall 2009; Fall 2011)
Geol 585 – Earth and Space Science for Teachers (Fall 2009; Fall 2011)
Geol 515 – Instrumental Analysis (Spring 2012)
Geol 517 – Advanced Topics: Geochemistry (Spring 2011)

2. **Guest Lectures:**

Geol 420 – Petroleum Geology (Spring 2009)
Geol 405 - Science Writing (Fall 2011; Fall 2012)

3. **Courses taught at Northern Illinois University (2001- 2004)**

Geol 120 – Instructor for Introduction to Physical Geology

4. **Other Teaching Activities**

• **Curriculum Development:**

- ***Geology 585 Earth and Space Science for Teachers:*** Developed a new online course for a new Master’s Degree program in Elementary Math and Science Education for Middle and High school teachers funded by the Illinois State Board of Education.
- ***Geology 330 – The Planets:*** Developed a new Interdisciplinary Core Curriculum Course & Lab. “***Build your own planet***” lab exercises: this specially designed package includes some of the most popular lab exercises for non-major students.

• **Educational Outreach:**

- Organized lab/demonstrations “***Hands-On activities in Water analysis***” scheduled for middle school students at the 20th annual Expanding Your Horizons conference on November, 2009. The program played an important role in helping approximately 120 girls from the southern Illinois region to catch a vision of the career possibilities open to them in Science, Engineering, Technology, and Mathematics.
- Organized and participated in the 2010 Summer Workshop “***Earth Science for Elementary School Teachers: Earth Science, Life Science, & Physical Science***”. I organized three presentations on “***Introduction to Earth Resources***” for the Earth Science discipline. The workshop was intended to teach basic concepts and skills to the K-8 classrooms science teachers.
- Organized lab/demonstration scheduled for ***Benton High School*** students during their Campus Visit on January 28, 2010.
- Organized and participated in the 2011 Junior Science Symposium Labs on Friday, March 25th, 2011. I organized laboratory demonstration titled “***Water Analysis***” for high school students.
- Organized lab/demonstration “***Earth’s Water: Water On and Under the Ground***” scheduled for middle school students at the 20th annual Expanding Your Horizons conference on November, 2011. The program played an important role in helping from the Southern Illinois region to catch a vision of the career possibilities open to them in Science, Engineering, Technology, and Mathematics.

VII. UNIVERSITY EXPERIENCE

1. Department Committees:

- Department Curriculum Committee, Geology Department, Southern Illinois University, 2012- present.
- ER&P Admission Committee, Geology Department, Southern Illinois University, 2012-present.
- Faculty Search Committee Member for the “*Stratigraphy and Sedimentology*” position, Geology Department, Southern Illinois University, 2012.
- Department Workload Committee, Southern Illinois University, 2012 – present.
- Scholarship and Fellowship Committee, Southern Illinois University, 2007- present.
- Faculty Search Committee Member for the “*Coal Geology*” position, Geology Department, Southern Illinois University, 2007 and 2008.
- Faculty Search Committee Member for the “*Geophysics*” position, Geology Department, Southern Illinois University, 2008.
- Department Computer Committee, Geology Department, Southern Illinois University, 2007- 2012.
- Co-chair Department Colloquium Committee, Northern Illinois University, 2001 - 2004.

2. College and University Committees and Councils:

1. College of Science Committees

- Faculty Representative in the College of Science Task Force “*Southern at 150*” 2008-2009.
- Graduate Student Representative of the College of Liberal Arts and Sciences to the Graduate Council, Northern Illinois University, 8/2002 - 8/2004.
- Graduate Student Representative to the Graduate Student Advisory Committee of the College of Liberal Arts and Sciences, Northern Illinois University, 8/2002 - 8/2004.

2. University Committees

- Faculty Representative to the Graduate Council designee for the 2010-2011 Program of Reviews. *Internal reviewer* for the Global Media Research Center, Southern Illinois University.
- Faculty Representative to the *Undergraduate Student Assistantship* Committee (1 yr. term). 20011-2012.
- Faculty Representative to the *Undergraduate Curriculum Committee*, Southern Illinois University, 2009-2011.
- Faculty Representative to the *Library Affairs Advisory Committee*, Southern Illinois University, 2007-2009.
- Graduate Student Representative to the *Search Committee* for Vice President for Research and Dean of the Graduate School, Northern Illinois University, 2003.

3. Other :

- Poster judge, Illinois Junior Science and Humanities Symposium, Carbondale IL, 2007 - present.

VIII. PROFESSIONAL SERVICE

A. Membership in Professional Associations:

- Geochemical Society, 2001 - present
- Geological Society of America, 2001 - present
- American Geophysical Union, 2004 - present
- Sigma Xi, 2008 - present

B. Offices Held and honors Awarded in Professional Associations:

Office Held or Honor Awarded, Name of Association, Date(s) Served or Awarded

C. Consultantships:

Advisory work related to acid mine drainage prevention in 2011 and 2012 for the Office of Surface Mining Reclamation and Enforcement and Illinois Department of Natural Resources, Office of Mines and Minerals.

D. Evaluation of Manuscripts for Journals and Book Publishers and of Grant Proposals for Agencies:

1. Manuscript reviews

- *Astrobiology* (2007)
- *Applied Geochemistry* (2011, 2012)
- *Geochimica et Cosmochimica Acta* (2006, 2011, 2012)
- *Chemical and Biochemical Engineering Quarterly* (2006, 2008)
- *Chemical Geology* (2011, 2012)
- *Isotopes in Environmental and Health Studies* (2008, 2009)
- *International Solvothermal & Hydrothermal Association Conference* (2010)
- *Environmental Science and Technologies* (2011, 2012)
- *Research on Chemical Intermediates (SCI, Published by Springer)* (2010)
- *Science of the Total Environment* (2011)

2. Proposal reviews

- *U.S. National Science Foundation* (2009, 2010, 2012)
- *NASA* (2008, 2011)
- *Oak Ridge Associated Universities* (2009, 2010)
- *Georgia National Science Foundation* (2008, 2009, 2010)
- *Shota Rustaveli National Science Foundation* (2011)
- *Azerbaijan-U.S. Bilateral Grant Program* (2008)

E. Papers and Presentations at Professional Meetings: see “*Research and Creative Activity*” section.

F. Other:

1. Professional Leadership:

- Organizer and Co-Chair of the Scientific Session: “***Impact of Energy Use on Human Health and the Environment***” 20th Annual Goldschmidt Conference, Knoxville, Tennessee, June 13 – 18, 2010.
- Member of the **NASA Peer Review Panel** for ***Outer Planets Program (2009)***.
- Participated in the ***Earth Science Literacy Initiative (ESLI)***, funded by the National Science Foundation (2009). The participants gathered and codified the underlying understandings of Earth sciences into a succinct document that have broad-reaching applications in both public and private arenas. <http://www.earthscienceliteracy.org/>
- Participated in the following **NASA white papers**:
 1. Astrobiology Priorities for Planetary Science Flight Missions
 2. Groundbreaking Sample Return from Mars: The Next Giant Leap in Understanding the Red Planet
 3. Development of Capabilities and Instrumentation for Curation and Analysis of Returned Samples
- Organizer and Co-Chair, Symposium on “***Innovative Applications of Isotope Geochemistry in Environmental Geology***” GSA 2008 North-Central Section Meeting in Evansville, Indiana, April 2008.

2. Other Professional Activities

- **Isotope Ratio Mass Spectrometry (IRMS) Laboratory**: the new IRMS lab serves as a campus facility and provides much needed analytical support for research, education, and training for a broad range of research programs in multiple departments and centers at SIUC. In collaboration with Dr. Mary Kinsel, Director MSF, and Mihai Lefticariu, Research Scientist MSF, I worked at the installation, testing, and optimization of the ThermoFinnigan Delta-V IRMS and the EA, TC-EA, and GasBench II units. In addition, my lab has developed robust methods for sample preparation (e.g., water, biological materials, carbonates, organic materials, sulfates) and analysis.

IX. COMMUNITY SERVICE

- Poster judge, at the annual IJAS Region 8 Science Fair at Southern Illinois University Carbondale, 2007 - present.
- Organized and participated in the 2010 Summer Workshop “***Earth Science for Elementary School Teachers: Earth Science, Life Science, & Physical Science***”. I organized three presentations on “***Introduction to Earth Resources***” for the Earth Science discipline. The workshop was intended to teach basic concepts and skills to the K-8 classrooms science teachers.