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个人简介

1958年生于吉林伊通, 1982、1987和1991年在长春地质学院分别获得学士、硕士和博士学位。现任北京大学地球与空间科学学院教授, 博士生导师, 北京大学地学研究中心副主任, 造山带与地壳演化教育部重点实验室常务副主任。兼任中国国际IGCP全国委员会委员、东北亚地学研究中心学术委员会委员、中国地质学会前寒武纪专业委员会委员、中国地层学会前寒武纪专业委员会委员、《中国科学D辑》、《地学前缘》和《世界地质》编委。主要从事前寒武纪地质学、岩石学、地质年代学、同位素地球化学和元素地球化学研究。对华北克拉通早前寒武纪变质作用、TTG和其它花岗岩片麻岩成因、中天山东段前寒武纪变质地块和独居石电子探针定年方面研究获得了重要成果。在国内外著名学术刊物上发表论文100余篇, 其中SCI检索论文27篇(包括Precam. Research, 和JAES等), 部分论文被SCI刊物引证300余次。1999年访问加拿大Saskatchewan大学地质科学系; 2001—2002年访问了美国加利福尼亚大学戴维斯分校地质学系; 2005年1—3月访问了香港大学地球科学系; 1997—2004年间三度访问韩国。主持完成的国家自然科学基金面上项目4项、国家自然科学基金重大国际合作项目1项等。曾荣获2002年度教育部科技进步二等奖(第三完成人)。

博士研究生和硕士研究生招生专业:

地球化学

招生专业研究方向:

1. 岩石地球化学
2. 同位素地球化学和地质年代学

研究方向简介

岩石地球化学方向: 通过岩石组合的常量元素、微量元素地球化学和Sr-Nd-Pb-Hf同位素系统特征分析岩浆源区、岩浆作用的过程和构造背景, 分析不同程度变质作用中元素分散与集中、同位素的分馏及其所反映出来的变质过程, 分析沉积物沉积和成岩作用过程中的元素和同位素地球化学过程, 进而确定沉积物的蚀源区、沉积过程的古构造背景和古气候条件。

同位素地球化学和地质年代学方向: 研究稳定和不稳定核素在地质体和地球环境中的分布, 阐明自然界同位素组成变异的原因和机理。重点研究地质事件和宇宙事件的定年, 以及利用放射成因核素、宇宙成因核素和稳定同位素来示踪各种地质作用和全球环境变化。研究和开发地质定年的新技术和新方法, 确定成岩作用、成矿作用、变形作用和变质作用的时代

主持的科研项目

1993.1~1995.12, 阜平群流体与岩石平衡体系及P-T路径研究, 国家自然科学基金(主持人, 资助号: 49202025)

1997.1~1999.12, 太行山太古宙变质杂岩变形变质相关性研究, 国家自然科学基金(主持人, 资助号: 49672153)

1996.5~2000.12, 东天山隆起带基底特征、隆升过程及早前寒武纪杂岩成矿远景分析, 国家重点(公关)项目, (第二负责人, 资助号96-915-06-02)

2001.1~2003.12, 中天山东段前寒武纪陆块的性质和变形变质过程, 国家自然科学基金(主持人, 资助号: 40072065)

1999.1~2002.12, 华北克拉通早期大陆性质与演化, 国家自然科学基金重点项目(研究骨干, 资助号: 49832030)

2004.1~2008.12, 陆-陆碰撞对高原东缘已有矿床的改造, 国家“973”项目(专题主持人, 资助号: 2002CB412608)

2004.1~2006.12, 华北克拉通中部古元古造山带形成与演化的动力学, 国家自然科学基金重大国际合作项目(主持人, 资助号: 40420120135)

2005.1~2007.12, 冀北晚太古一早元古红旗营子-单塔子的地质事件和演化的动力学, 国家自然科学基金项目(主持人, 资助号: 40472096)

2006.1~2010.12, 西秦岭多金属成矿及相关地质作用的年代学, 国家科技支撑项目专题(主持人, 资助号: 2006BAB01A11)

主要研究成果

1. 确定了太行山太古宙阜平杂岩由下部的TTG片麻岩和麻粒岩包体、中部的南营片麻岩和上部的湾子副变质岩系三个岩石构造单元组成。通过变质作用过程中流体与岩石平衡体系研究, 确定了TTG片麻岩中的铁镁质麻粒岩形成于渗透流体与岩石平衡体系, 而TTG片麻岩和湾子副变质岩系形成于缓冲流体与岩石平衡体系。

2. 确定了太古代恒山杂岩与阜平杂岩曾经是一个古老的变质地块, 二者形成于2.5Ga活动大陆边缘构造环境。太古代五台山杂岩由2.60~2.53Ga中基性火山岩、变质沉积岩系和大量的钙碱性花岗岩系组成, 形成于太古宙大洋岛弧环境。五台山太古宙花岗岩起源于岛弧根部初生地壳岩石的部分熔融。古元古代南营片麻岩是原TTG片麻岩和部分副变质岩系在同造山到晚造山环境下的部分熔融形成的。研究成果发表在国内外一流学术杂志上, 已经被广泛引用。

3. 确定了华北克拉通中部带南段古元古代造山带的单元、结构和形成演化的动力学过程。恒山-五台-中条太古代杂岩形成于大约25亿年的东部陆块的西部岛弧区, 古元古代早期(约23亿年)发育了与伸展相关的早期基性岩墙活动和一些相关的花岗质岩浆活动, 古元古代晚期发育以溥沱群的豆村亚群、东冶亚群为代表和中条地区以中条群为代表的似被动大陆边缘的环境。约1850Ma, 华北克拉通中部古元古代洋盆闭合于吕梁山地区, 形成中部造山带。

4. 华北克拉通北缘中段单塔子杂岩形成于约25亿年的活动大陆边缘, 是华北克拉通北缘中段的太古代边缘, 在2450Ma-2420Ma经历了早期麻粒岩相变质作用, ~1850Ma发生小规模铁镁质岩浆的侵位, ~1800Ma发生第二次麻粒岩相变质作用, ~1700Ma形成了来辉长岩-斜长岩-碱性花岗岩的非造山岩石组合。北部的红旗营子杂岩主要由太古代地块、古元古代地块组成, 在~300Ma被拼贴到华北克拉通北缘之上。

5. 建立了电子探针U-Th-Pb独居石电子探针定年的方法, 确定了五台山和吕梁山中低级变质岩系的变质作用发生于1868-1820Ma, 与太行山和恒山杂岩变质锆石和火成锆石变质生长边SHRIMP U-Pb定年结果一致, 确定了华北克拉通中部古元古代造山带形成于太古代东部、西部陆块在古元古代晚期最终碰撞。电子探针U-Th-Pb独居石电子探针定年方法, 解决了SHRIMP锆石U-Pb定年解决不了的中低级变质作用定年, 并且进行了岩石薄片下变质矿物原位定年, 为真正的解决变质作用Pt轨迹研究中时间t的问题提供了重要手段。

发表的代表性学术论文:

1. Li QG, **Liu SW**, Wang ZQ. 2008, Contrasting provenance of Late Archean metasedimentary rocks from the Wutai Complex, North China Craton: detrital zircon U-Pb, whole-rock Sm-Nd isotopic, and geochemical data, INTERNATIONAL JOURNAL OF EARTH SCIENCES, 97 (3): 443-458
2. Feng YG, **Liu SW**, Lu YJ. 2008, Monazite age mapping of Longhua S-type granites in the northern margin of the North China Craton, ACTA PETROLOGICA SINICA, 24 (1): 104-114
3. Guo LS, **Liu SW**, Liu YL. 2008, Zircon Hf isotopic features of TTG gneisses and formation environment of Precambrian Shui complex in Zhongtiao mountains, ACTA PETROLOGICA SINICA, 24 (1): 139-148
4. Zhang SH, **Liu SW**, Zhao Y. 2007, The 1.75-1.68 Ga anorthite-mangerite-alkali granitoid-rapakivi granite suite from the northern North China Craton: Magmatism related to a Paleoproterozoic orogen, PRECAMBRIAN RESEARCH, 155 (3-4): 287-312
5. Zhang C, **Liu SW**, Han BF. 2007, SHRIMP U-Pb dating of Dashigou biotite-K-felspar granites in Shangdu, Inner Mongolia, and its significance., ACTA PETROLOGICA SINICA, 23 (3): 591-596
6. Li QG, **Liu SW**, Wang ZQ. 2007, Geochemical constraints on the petrogenesis of the Proterozoic granitoid gneisses from the eastern segment of the Central Tianshan Tectonic Zone, northwestern China, GEOLOGICAL MAGAZINE, 144 (2): 305-317
7. **Liu SW**, Zhao GC, Wilde SA. 2006, Th-U-Pb monazite geochronology of the Luliang and Wutai Complexes: Constraints on the tectonothermal evolution of the Trans-North China Orogen, PRECAMBRIAN RESEARCH, 148 (3-4): 205-224
8. **Liu SW**, Wang ZQ, Yan QR. 2006, Indosinian tectonic setting of the Southern Yidun Arc: Constraints from SHRIMP zircon chronology and geochemistry of dioritic porphyries and granites, ACTA GEOLOGICA SINICA-ENGLISH EDITION, 80 (3): 387-399
9. **Liu SW**, Tian W; Lu YJ. 2006, Geochemistry, Nd isotopic characteristics of metamorphic complexes in northern Hebei: Implications for crustal accretion, ACTA GEOLOGICA SINICA-ENGLISH EDITION, 80 (6): 807-818
10. Zhao GC, **Liu SW**, Sun M. 2006, What happened in the Trans-North China Orogen in the period 2560-1850 Ma?, ACTA GE

11. Chen B, *Liu SW*, Wang R. 2006, Nd-Sr isotopic geochemistry of the late Archean-Paleoproterozoic granitoids in the Lulian g-Wutai terrain, North China Craton, and implications for petrogenesis, ACTA GEOLOGICA SINICA-ENGLISH EDITION, 80 (6): 834-843
12. Tian W; *Liu, SW*; Zhang, HF, 2006, Paleoproterozoic potassic granitoids in the Sushui Complex from the Zhongtiao Mountains, northern China: Geochronology, geochemistry and petrogenesis, ACTA GEOLOGICA SINICA-ENGLISH EDITION, 80 (6): 875-885
13. Lu YJ, *Liu SW*, Zhao GC. 2006, Geochemistry and petrogenesis of Neoproterozoic mafic rocks in the Wutai Complex, ACTA GEOLOGICA SINICA-ENGLISH EDITION, 80 (6): 899-911
14. Yu SQ, *Liu SW*, Tian W. 2006, SHRIMP zircon U-Pb chronology and geochemistry of the Henglingguan and Beiyu granitoids in the Zhongtiao Mountains, Shanxi Province, ACTA GEOLOGICA SINICA-ENGLISH EDITION, 80 (6): 912-924
15. Liu CH, *Liu SW*, Li QG. 2006, Petrogenesis of the Paleoproterozoic Guandishan granitoids in Shanxi Province: Constraints from geochemistry and Nd isotopes, ACTA GEOLOGICA SINICA-ENGLISH EDITION, 80 (6): 925-935
16. Zhang C, *Liu SW*, Han BF. 2006, Characteristics of ultramafic xenoliths from Cenozoic basalts in Abagaqi area, Inner Mongolia, ACTA PETROLOGICA SINICA, 22 (11): 2801-2807
17. Tian W, *Liu SW*, Liu CH, 2006, Zircon SHRIMP geochronology and geochemistry of TTG rocks in Sushui Complex from Zhongtiao Mountains with its geological implications, PROGRESS IN NATURAL SCIENCE, 16 (5): 492-500 MAY 2006
18. Liu, CH.; *Liu SW*; Li, QG. 2006. Petrogenesis of Paleoproterozoic Luyashan charnockitic rocks in Shanxi province: constraints from geochemistry and Nd isotope. Progress in natural sciences, 16 (2): 183-191.
19. *Liu, SW*; Zhang, JJ; Shu, GM; Li, QG., Mineral chemistry, P-T-t paths and exhumation processes of mafic granulites in Dinggye, Southern Tibet, SCIENCE IN CHINA SERIES D-EARTH SCIENCES, 48 (11): 1870-1881 NOV 2005 (SCI)
20. Li, QG; *Liu, SW*; Han, BF; Wang, YR; Dang, QN., Geochemical characteristics of the metapelites from the Xingxingxia group in the Eastern Segment of the Central Tianshan: Implications for the provenance and paleoweathering, SCIENCE IN CHINA SERIES D-EARTH SCIENCES, 48 (10): 1637-1648 OCT 2005 (SCI)
21. Zhang, J; *Liu, SW*; Zhao, GC; Sun, M., Geochemistry of the Wutai granitoids: Constraints on the tectonic evolution of the Trans-North China Orogen, GEOCHIMICA ET COSMOCHIMICA ACTA, 69 (10): A641-A641 Suppl. S MAY 2005 (SCI)
22. Li, QG; *Liu, SW*; Han, BF; Zhang, J; Chu, ZY, Geochemistry of metasedimentary rocks of the Proterozoic Xingxingxia complex: implications for provenance and tectonic setting of the eastern segment of the Central Tianshan Tectonic Zone, northwestern China, CANADIAN JOURNAL OF EARTH SCIENCES, 42 (3): 287-306 MAR 2005 (SCI)
23. Yan, QR; Wang, ZQ; *Liu, SW*; Li, QG; Zhang, HY; Wang, T; Liu, DY; Shi, YR; Jian, P; Wang, JG; Zhang, DH; Zhao, J., Opening of the Tethys in southwest China and its significance to the breakup of East Gondwanaland in late Paleozoic: Evidence from SHRIMP U-Pb zircon analyses for the Garze ophiolite block, CHINESE SCIENCE BULLETIN, 50 (3): 256-264 FEB 2005 (SCI)
24. *Liu, SW*; Pan, YM; Xie, QL; Zhang, J; Li, QG; Yang, B., Geochemistry of the Paleoproterozoic Nanying granitic gneisses in the Fuping Complex: implications for the tectonic evolution of the Central Zone, North China Craton, JOURNAL OF ASIAN EARTH SCIENCES, 24 (5): 643-658 FEB 2005 (SCI)
25. *Liu, SW*; Guo, ZJ; Zhang, ZC; Li, QG; Zheng, HF, Nature of the Precambrian metamorphic blocks in the eastern segment of Central Tianshan: Constraint from geochronology and Nd isotopic geochemistry, SCIENCE IN CHINA SERIES D-EARTH SCIENCES, 47 (12): 1085-1094 DEC 2004 (SCI)
26. Zhao, GP; *Liu, SW*; Liu, LH., Compositional distribution and growth mode of garnet porphyroblasts during ring deformation and metamorphism, ACTA GEOLOGICA SINICA-ENGLISH EDITION, 78 (1): 186-190 Sp. Iss. SI 2004 (SCI)
27. *Liu, SW*; Pan, YM; Xie, QL; Zhang, J; Li, QG., Archean geodynamics in the Central Zone, North China Craton: constraints from geochemistry of two contrasting series of granitoids in the Fuping and Wutai complexes, PRECAMBRIAN RESEARCH, 130 (1-4): 229-249 APR 20 2004 (SCI)
28. Li, QG; *Liu, SW*; Han, BF; Zhang, J; Chu, ZY, Nd isotopic characteristics of Proterozoic metasedimentary rocks and constraints on their provenance in the eastern segment of Central Tianshan Belt, Xinjiang, PROGRESS IN NATURAL SCIENCE, 13 (12): 908-913 DEC 2003. (SCI)

29. Guo, ZJ; Zhang, ZC; *Liu, SW*; Li, HM, U-Pb geochronological evidence for the early Precambrian complex of the Tarim Craton, NW China, ACTA PETROLOGICA SINICA, 19 (3): 537-542 JUL 2003 (SCI)
 30. Xie, Q; *Liu, S*; Pan, Y; Shao, H., Mass discrimination in MC-ICP-MS: example from Cu-Zn isotopes, GEOCHIMICA ET COSMOCHIMICA ACTA, 66 (15A): A850-A850 Suppl. 1 AUG 2002 (SCI)
 31. *Liu, SW*; Pan, YM; Li, JH; Li, QG; Zhang, J, Geological and isotopic geochemical constraints on the evolution of the Fuping Complex, North China Craton, PRECAMBRIAN RESEARCH, 117 (1-2): 41-56 JUL 31 2002 (SCI)
 32. *Liu, SW*; Li, JH; Pan, YM; Zhang, J; Li, QG., An Archean continental block in the Taihangshan and Hengshan regions: Constraints from geochronology and geochemistry, PROGRESS IN NATURAL SCIENCE, 12 (8): 568-576 AUG 2002 (SCI)
 33. *Liu, SW*; Liang, HH; Zhao, GC; Hua, YG; Jian, AH. 2000, Isotopic chronology and geological events of Precambrian complex in Taihangshan region, SCIENCE IN CHINA SERIES D-EARTH SCIENCES, 43 (4): 386-393 (SCI)
 34. *Liu, SW*; Zhang, JJ; Zheng, YD., Syn-deformation P-T paths of Xiaoqinling metamorphic core complex, CHINESE SCIENCE BULLETIN, 43 (22): 1927-1934 NOV 1998 (SCI)
 35. Haihua, L; Jianjun, H; *Shuwen, L*; Zufeng, Z., Tectonic stress field and large earthquake recurrence period in China, EPISODES, 21 (3): 167-171 SEP 1998 (SCI)
 36. *Liu, SW.*, Study on fluid-rock equilibrium systems of Fuping gneiss complex, Taihang Mountains., SCIENCE IN CHINA SERIES D-EARTH SCIENCES, 40 (3): 239-245 JUN 1997
- Zhang, JJ; *Liu, SW*; Zheng, YD; Chen, J; Shi, QZ; Yu, XD; Xue, LW., Raman spectral analysis and genetic mechanism of pseudotachylyte in Xiaoqinling detachment fault, SCIENCE IN CHINA SERIES D-EARTH SCIENCES, 41 (3): 242-247 JUN 1998 (SCI)

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