Curriculum Vitae

Personal data

Name:	Ming-Chang Liu
Address:	Department of Earth, Planetary and Space Sciences UCLA 595 Charles Young Drive East Los Angeles, CA 90095 USA
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E-mail:	mcliu@ucla.edu
Date of Birth:	12/22/1978
Nationality:	Taiwan, R.O.C. (US Permanent Resident)
Languages:	English (fluent), Mandarin (native)

Education

Ph.D. 2008	Department of Earth and Space Sciences, UCLA Los Angeles, California, USA. Thesis: Short-lived radionuclides and early Solar System chronology: A hibonite perspective. Advisor: Prof. Kevin D. McKeegan
B.S. 2001	Department of Geosciences, National Taiwan University Taipei, Taiwan, R.O.C

Professional Experiences

- Ion Microprobe Specialist & Manager of NSF National Ion Microprobe Facility, Department of Earth, Planetary and Space Sciences, UCLA, July 2014 – present
- Visiting Professor, Institut de Physique du Globe de Paris, France, Feb 2014 – March 2014
- Director of NanoSIMS Laboratory at Academia Sinica, May 2013 – July 2014
- Assistant Research Fellow (Assistant Professor equivalent), Institute of Astronomy and Astrophysics, Academia Sinica, Taiwan, Jan 2012 – July 2014
- Postdoctoral Researcher, Institute of Astronomy and Astrophysics, Academia Sinica, Taiwan, Sept 2011 – Dec 2011
- Joint Postdoctoral Researcher, Centre de Recherches Pétrographiques et Géochimiques, CNRS, & Institute of Astronomy and Astrophysics, Academia Sinica, Sept 2010 – Aug 2011.
- Joint Postdoctoral Researcher, Department of Terrestrial Magnetism, Carnegie Institution of Washington & Institute of Astronomy and Astrophysics, Academia Sinica, Taiwan, Aug 2008 – Aug 2010.
- Research Assistant, Department of Earth and Space Sciences, UCLA, Sep 2003 – Jul 2008.
- Teaching Assistant in ”Solar System and Planets”, Department of Earth and Space Sciences, UCLA, Spring 2005 / Fall 2006.

- Research Assistant, Institute of Earth Sciences, Academia Sinica, Taiwan, Jan 2000 – Oct 2001.
- Summer Intern, Institute of Astronomy and Astrophysics, Academia Sinica, Taiwan, Summer 2000.
- Observation Assistant of "Observational Astronomy", Department of Physics, NTU, Spring 1998.

Research Interests

- Formation of CAIs, Chondrites and the Solar System
- Short-lived Radionuclides and Early Solar System Chronology
- Isotopic Anomalies in Primitive Meteorites and Stellar Nucleosynthesis
- Modeling of Stable Isotope Anomalies in Irradiation Processes
- Secondary Ion Mass Spectrometry and Its Applications to Isotope Cosmochemistry and Geochemistry

Instrument Experiences

- 13-year experience with CAMECA IMS1290/1280HR2/1270/6f Ion Microprobes, including operation, developments of analytical protocols, and routine maintenance
- 3-year experience with CAMECA NS50L Ion Microprobe (NanoSIMS), including operation, developments of analytical protocols, and routine maintenance
- 5-year experience with Leo 1430 Scanning Electron Microscope
- 2-year experience with JEOL JSM-6500 field emission Scanning Electron Microscope
- 2-year experience with Tescan VEGA3 Scanning Electron Microscope

Honors and Awards

- Invited Professorship, Institut de Physique du Globe de Paris, France, Feb 2014 – March 2014
- Short-term Researcher Fellowship, Japanese Society for the Promotion of Science, 2013.
- Excellence in Teaching Earth and Space Sciences (score 8.7/9), Department of Earth and Space Sciences, UCLA, 2007
- University Fellowship, Fall 2007
- UCLA IGPP Astrobiology Fellowship, 2003

Professional Society

- Meteoritical Society (2004 – present)
- Geochemical Society (2015 – present)

Community Service

- Peer Reviewer: Geochimica et Cosmochimica Acta, Earth and Planetary Science Letters, The Astrophysical Journal Letters, Meteoritics and Planetary Sciences, Astronomy and Astrophysics, Plan-

etary and Space Sciences, NASA Cosmochemistry (now Emerging Worlds) Proposals, AGU Monograph.

- Conference: 2016 Goldschmidt 2c Session Convener.

Departmental Service

- Chair, Colloquium Committee, 2013 – 2014, Institute of Astronomy and Astrophysics, Academia Sinica
- Member, Project Committee, 2013 – 2014, Institute of Astronomy and Astrophysics, Academia Sinica
- Member, Instrumentation Review Panel, 2012 – 2014, Institute of Astronomy and Astrophysics, Academia Sinica

Funding

- 2014–2015 Ministry of Science and Technology (formerly known as National Science Council), Taiwan, ROC. Tracing irradiation processes in the solar nebula by using short-lived radionuclides in refractory inclusions ($\sim$ 56,000 USD), sole PI (Turned down because of leaving Academia Sinica for UCLA).
- 2013–2014 National Science Council, Taiwan, ROC. Tracing irradiation processes in the solar nebula by using short-lived radionuclides in the meteorites ($\sim$ 50,000 USD), sole PI.
- 2012–2013 National Science Council, Taiwan, ROC. Tracing irradiation processes in the early Solar System through isotopic compositions in meteorite components ($\sim$ 66,411 USD), sole PI.

Postdocs Supervised

- Zan Peeters, Nov 2013 – July 2014
- Bernd Liebig, Aug 2013 – July 2014

Students Supervised

- Erika Valdueza (Summer intern student), July 2013 – Aug 2013
- Pei-Shan Jiang (Summer intern student), July 2013 – Aug 2013

Publications

Book chapters

2. **Liu, M.-C.** and Chaussidon, M. 2016, The Cosmochemistry of Boron. Advances in Isotope Geochemistry, Boron Isotopes – The Fifth Element, (*Accepted*)
1. Chaussidon, M. and **Liu, M.-C.** 2015, Timing of Nebula Processes which Shaped the Precursors of the Terrestrial Planets. AGU Monograph "The Early Earth", 1–26.

Peer reviewed journals

14. Tang, H., **Liu, M.-C.**, McKeegan, K. D., Tissot, F. L. H. and Dauphas, N. 2016, In situ Isotopic Studies of the U-depleted Allende CAI *Curious Marie*: Pre-accretionary Alteration and the Co-existence of ^{26}Al and ^{36}Cl in the Early Solar Nebula. *Geochimica et Cosmochimica Acta*, (*submitted*)
13. Oehler, D. Z., Walsh, M. M., Sugitani, K., **Liu, M.-C.** and House, C. H. 2016, Significance of Large and Robust, Lenticular Microorganisms on the Young Earth. *Precambrian Research*, (*submitted*)
12. **Liu, M.-C.** 2016, The Initial ^{41}Ca/^{40}Ca Ratios in Two Type A Ca-Al-rich Inclusions: Implications For the Origin of Short-lived ^{41}Ca. *Geochimica et Cosmochimica Acta*, (*in press*)
11. Hirashita, H., Asano, R., Nozawa, T., Li, Z.-Y., and **Liu, M.-C.** 2014, Dense Molecular Cloud Cores as a Source of Micrometer-sized Grains in Galaxies. *Planetary and Space Sciences*, 100, 40–45.
10. **Liu, M.-C.** 2014, On the Injection of Shortest-Lived Radionuclides From a Supernova Into the Solar Nebula: Constraints From the Oxygen Isotopes. *The Astrophysical Journal Letters*, 781, L28.
9. **Liu, M.-C.**, Chaussidon, M., Srinivasanl, G., and McKeegan, K. D. 2012, A Lower Initial Abundance of Short-lived ^{41}Ca in the Early Solar System and Its Implications for Solar System Formation. *The Astrophysical Journal*, 761, 137.
8. **Liu, M.-C.** 2012, Short-lived Radionuclides in the Early Solar System. *AIP Conference Proceedings*, 1484, 52–56.
7. **Liu, M.-C.**, Chaussidon, M., Göpel, C., and Lee, T. 2012, A Heterogeneous Solar Nebula as Sampled by CM Hibonite. *Earth Planetary Science Letters*, 327, 75–83.
6. **Liu, M.-C.**, Nittler, L. R., Alexander, C. M. O'D., and Lee, T. 2011, Protosolar Irradiation in the Early Solar System: Clues from Lithium and Boron Isotopes. *Proceedings of Nuclei in the Cosmos XI*, PoS(NIC XI)145.
5. **Liu, M.-C.**, Nittler, L. R., Alexander, C. M. O'D., and Lee, T. 2010, Lithium-Beryllium-Boron Isotopic Compositions in Meteoritic Hibonite: Implications for Origin of ^{10}Be and Early Solar System Irradiation. *The Astrophysical Journal Letters*, 719, L99–L103.
4. **Liu, M.-C.**, McKeegan, K. D., Goswami, J. N., Marhas, K. K., Sahijpal, S., Ireland, T. R., and Davis, A. M. 2009, Isotopic Records in CM Hibonites: Implications for Timescales of Mixing of Isotope Reservoirs in the Solar Nebula. *Geochimica et Cosmochimica Acta*, 73, 5051–5079.
3. **Liu, M.-C.** and McKeegan, K. D. 2009, On an Irradiation Origin for Magnesium Isotope Anomalies in Meteoritic Hibonite. *The Astrophysical Journal Letters*, 697, L145–L148
2. McKeegan, K. D. and 46 co-authers including **Liu, M.-C.** 2006, Isotopic Compositions of Cometary Matter Returned by Stardust. *Science*, 314, 1724–1728.
1. Brownlee, D. and 182 co-authors including **Liu, M.-C.** 2006, Comet 81P/Wild 2 Under a Microscope. *Science*, 314, 1711–1716.

Invited Presentations (last 5 years)

- The Initial ^{41}Ca/^{40}Ca Ratios in Two Type A Ca-Al-rich Inclusions: Implications For the Origin of Short-lived ^{41}Ca. Lunar and Planetary Institute, Houston, TX, Sept 2016
- "A Lower Initial Abundance of ^{41}Ca: Implications for the Origins of Short-lived Radionuclides", Institut de Physique du Globe de Paris, France, Feb 2014

- "On a Supernova Origin of Short-lived Radionuclides in the Early Solar System: Constraints from Oxygen Isotopes" Kochi Core Research Institute, JAMSTEC, Kochi, Japan, Dec 2013
- "Formation of First Solids in the Solar System: Perspectives from Stable and Radioactive Isotopes" ROCKS Workshop, Kona, Hawaii, USA, Apr 2013
- "A Lower Initial Abundance of ^{41}Ca and its Implication for the Solar System Formation" Workshop on Cosmochemical Perspective on the Early Evolution of the Solar System, University of Hokkaido, Sapporo, Japan, Feb 2013
- "^{41}Ca Revisited: A New Initial Ratio and Its Implications for Solar System Formation" Kochi Core Research Institute, JAMSTEC, Kochi, Japan, Oct 2012
- "^{41}Ca Revisited: A New Initial Ratio and Its Implications for Solar System Formation" Institute of Oceanography, National Taiwan University, Taipei, Taiwan, Sept 2012
- "A Heterogeneous Solar Nebula as Sampled by CM Hibonite" Department of Earth and Space Sciences, UCLA, Los Angeles, California, USA, Apr 2012
- "A Heterogeneous Solar Nebula as Sampled by CM Hibonite" Department of Geophysical Sciences, The University of Chicago, Chicago, Illinois, USA, Apr 2012
- "Calcium-41 Revisited: Development of Potassium Isotope Mass Spectrometry on the CAMECA IMS1280HR2" Biennial Geochemical SIMS Workshop, Honolulu, Hawaii, USA, Nov 2011
- "The "HOTTEST" Mineral in the Solar System and Irradiation from the Proto-Sun" Planetary Science Institute, Tucson, Arizona, USA, Aug 2011
- "The "HOTTEST" Mineral in the Solar System and Irradiation from the Proto-Sun" Workshop on Material Circulation in the Early Solar System, Hokkaido University, Japan, May 2011
- "High Precision Mg Isotope Analysis by Ion Microprobe: Applications to Dating the Early Accretion Processes in the Solar System" 8th International Symposium on Atomic Level Characterizations for New Materials and Devices, Korea, May 2011

Miscellaneous Experiences

Secondary Lieutenant of Political Warfare, Army, Taiwan, R.O.C., Oct 2001 – Jun 2003

References

Prof. Kevin D. McKeegan (Thesis advisor)
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Dr. Larry Nittler (Postdoctoral advisor)
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