

Shaofan Che, Ph.D.

Lunar and Planetary Laboratory
The University of Arizona
1629 E. University Blvd.
Tucson, AZ 85721-0092

Email: sche@lpl.arizona.edu;
sche@arizona.edu
Phone: +1 (505) 203-9163

EDUCATION

Ph.D., Earth and Planetary Sciences, University of New Mexico, USA, December 2020.

- Advisor: Dr. Adrian J. Brearley.

M.S., Geology, China University of Geosciences (Wuhan), China, June 2016.

- Advisor: Dr. Long Xiao.

B.S., Geology, China University of Geosciences (Wuhan), China, June 2013.

- Advisor: Dr. Long Xiao.

PROFESSIONAL APPOINTMENTS

Postdoctoral Research Associate, 05/2021-present.

Lunar and Planetary Laboratory, University of Arizona, USA.

- Research projects: Atomic-scale analysis of samples returned from the Hayabusa mission and analogs of those to be returned by Hayabusa 2 and OSIRIS-Rex.

Postdoctoral Research Associate, 01/2021 – 04/2021.

Department of Earth and Planetary Sciences, University of New Mexico, USA.

- Research project: TEM analytical work on synthetic Al-bearing condensate smokes to model the vapor condensation processes in astronomical environments.

Research Assistant, 06/2019 – 12/2020.

Department of Earth and Planetary Sciences, University of New Mexico, USA.

- Research projects: (1) Microstructural constraints on the formational and alteration histories of calcium-aluminum-rich inclusions from CV3 chondrites; (2) Fine chromite inclusions in Martian shergottite olivines and their implications for the thermal and redox history of the Martian mantle.

Research Assistant, 09/2013 – 06/2016.

Planetary Science Institute, School of Earth Sciences, China University of Geosciences (Wuhan), China.

- Research project: Petrology and mineralogy of several HED meteorite samples, the systematics of Fe/Mn ratios of their olivine and pyroxene, and the implications for the early differentiation history of the HED parent body.

Lab Assistant, 09/2013 – 06/2016.

Planetary Science Institute, School of Earth Sciences, China University of Geosciences (Wuhan), China.

- Responsible for preparing meteorite sample thin sections for electron microscope studies.

TEACHING EXPERIENCE

Teaching Assistant, 08/2016 – 05/2019.

Department of Earth and Planetary Sciences, University of New Mexico, USA.

- Mineralogy for undergraduate students, Fall 2016, 2017 and 2018.
- Petrology for undergraduate students, Spring 2017, 2018 and 2019.

Teaching Assistant, 09/2014 – 06/2015.

School of Earth Sciences, China University of Geosciences (Wuhan), China.

- Comparative Planetary Petrology for undergraduate students, Fall 2014.
- Mineralogy and Petrology for undergraduate students, Spring 2015.

HONORS AND SCHOLARSHIPS

- Graduation with distinction, University of New Mexico, 12/2020.
- The University of New Mexico Research Assistantship, 06/2019 – 12/2020.
- Gorham International Scholarship, 2018.
- UNM EPS Alumni International Scholarship, 2017, 2019.
- The University of New Mexico Teaching Assistantship, 08/2016 – 05/2019.
- China University of Geosciences Teaching Assistantship, Spring 2015, Fall 2014.
- China University of Geosciences Scholarship, 2013-2014, 2014-2015, First Prize.

PUBLICATIONS

Peer-reviewed Journal Articles:

- Che S.** and Brearley A. J. (2021). An evolutionary condensation sequence revealed by mineralogically-distinct nodules in fine-grained, spinel-rich inclusions from CV3 chondrites: Implications for the genetic links between different types of non-igneous refractory inclusions. *Geochimica et Cosmochimica Acta* (under review).
- Che S.** and Brearley A. J. (2021). Microstructures of enstatite in fine-grained CAIs from CV3 chondrites: Implications for mechanisms and conditions of formation. *Geochimica et Cosmochimica Acta*, 296, 131–151.
- Che S.** and Brearley A. J. (2021). The formation and alteration history of a forsterite-bearing Type C CAI from Allende: Evidence for a Type B CAI precursor, and implications for fluid-assisted metasomatism on the CV chondrite parent body. *Geochimica et Cosmochimica Acta*, 293, 277–307.

Manuscripts in Preparation:

- Che S.**, Brearley A. J., Shearer C. K. (2021). Late-stage oxidation of Yamato 980459 shergottite: Evidence from chromite + silica trails in olivine megacrysts (in prep.).
- Che S.** and Brearley A. J. (2021). A microstructural study of forsterite-bearing, fine-grained, spinel-rich inclusions from the Leoville CV3 chondrite: Implications for the transportation process in the formation regions of refractory inclusions (in prep.).
- Che S.** and Brearley A. J. (2021). The role of fluid chemistry in the alteration of melilite-rich CAIs and their Wark-Lovering rims from the Allende CV3 chondrite (in prep.).

Conference Abstracts:

- Che S.**, Brearley A. J., Shearer C. K. (2021). Late-Stage Oxidation of Yamato 980459 Shergottite: Evidence from Chromite + Silica Trails in Olivine. *52nd LPSC*, Abstract #1136.
- Che S.** and Brearley A. J. (2020). Microstructures of Low-Ca Pyroxene in Fine-Grained CAIs from CV3 Chondrites: Implications for Mechanisms and Conditions of Formation. *51st LPSC*, Abstract #1256.

- Che S.** and Brearley A. J. (2020). The Role of Microchemical Environments in the Alteration of Wark-Lovering Rims on Allende Melilite-Rich Calcium-Aluminum-Rich Inclusions. *51st LPSC*, Abstract #1257.
- Che S.** and Brearley A. J. (2019). A Complex Evolution Sequence Revealed by the Textures of Fine-Grained, Spinel-Rich Inclusions from the Leoville CV3 Chondrites: A Genetic Link Between Fluffy Type-A CAIs, Spinel-Rich Inclusions, and Amoeboid Olivine Aggregates. *50th LPSC*, Abstract #1486.
- Che S.**, Brearley A. J., Shearer C. K. (2019). Possible Formation Mechanisms of Chromite and Melt Inclusion Trails in Yamato 980459 Shergottite Olivine: Implications for Its Thermal History. *50th LPSC*, Abstract #1947.
- Che S.** and Brearley A. J. (2018). The Role of Fluid in the Formation of the Iron-Alkali-Halogen Zoning Sequence in an Allende Type C CAI. *49th LPSC*, Abstract #2922.
- Che S.** and Brearley A. J. (2017). The Origin of Alkali-Halogen Zonal Sequence in an Allende Type C CAI. *80th MetSoc*, Abstract #6324.
- Che S.** and Brearley A. J. (2017). Textural Evidence for a FoB-Like Precursor and a Multiple Evolution History of an Allende Forsterite-Bearing Type C CAI. *48th LPSC*, Abstract #2414.
- Che S.**, He Q., and Xiao L. (2015). NWA 7188 Euclite: Petrology, Chemical Compositions and Evolution History. *46th LPSC*, Abstract #1084.