



Research Field: PLANETARY MINERALOGY

Focused Field: HYDROUS MINERALS ON MARS



SHORT BIO

I obtained a bachelor degree in Geological Engineering at Southwest University of Science and Technology (SWUST), China in 2013 and then went to Guangzhou Institute of Geochemistry, Chinese Academy of Sciences (GIGCAS) for further studies under the supervision of Prof. Peng Yuan. In 2018, I earned my PhD degree in Mineralogy of University of Chinese Academy of Sciences (UCAS). I continued to work at GIGCAS as a postdoc until I was offered a position of assistant professor at Macau University of Science and Technology (MUST) in 2020.

My current research interest includes i) Mars surface composition and processes, ii) Mars analog studies (e.g., Qaidam Basin) and iii) formation, alteration, and transformation of hydrous minerals (e.g., clay minerals and iron oxides).

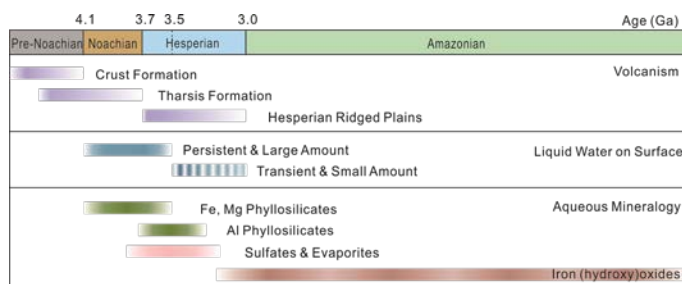
Applicants for Master, PhD and postdoc opportunities, especially those with backgrounds in planetary science, geosciences, chemistry, etc., are welcome to contact me at any time.

Asst. Prof.

Peixin DU
(杜培鑫)



PhD: MINERALOGY – University of Chinese Academy of Sciences (UCAS)
Degree: GEOLOGICAL ENGINEERING – Southwest University of Science and Technology (SWUST)



Timeline of some major events on the Martian surface (Du et al, *Earth-Science Reviews*, 2023).

KEY PUBLICATIONS (first author & corresponding author)

- Han, M.; **Du, P.X.***; Liu, Z.; et al., **2026**. Effect of Martian Brine on Preservation of Lysine by Montmorillonite: Comparison between Freeze-Thaw Cycling and Constant-Temperature Conditions. *Applied Clay Science*.
- Liu, Z.Y.; **Du, P.X.***; Han, M.; et al., **2026**. Organic matter in Martian radiation environment: Occurrence, evolutionary pathways, influence factors, characterization techniques, and further perspectives. *Earth-Science Reviews*.
- Liu, Z.Y.; **Du, P.X.***; Dai, Z.S.; et al., **2026**. Aging and drying of gel precursors promote nontronite crystallization during hydrothermal synthesis. *Applied Clay Science*.
- 戴展硕; **杜培鑫***; 刘忠义; 等, **2026**. 模拟火星壤MMS-1与MMS-2的化学、矿物学和光谱表征及其适用性评价. *岩石矿物学杂志*.
- Guo, X.L.; **Du, P.X.***; Liu, H.M.; et al., **2026**. Experiments on Al-Si hydrolysis systems with different Si/(Al+Si) molar ratios: Implications for identification of amorphous Al/Si phases on Mars. *Journal of Geophysical Research: Planets*.
- Xiang, X.Y.; **Du, P.X.***; Ye, B.L.; et al., **2024**. Hydrolysis products of Fe-Si systems with different Si/(Si+Fe) molar ratios: Implications for detection of ferrihydrite on Mars. *Journal of Geophysical Research: Planets*.



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- Du, P.X.***; Yuan, P.; Liu, J.C.; Ye B.L., **2023**. Clay minerals on Mars: A up-to-date review with future perspectives. *Earth-Science Reviews*.
- Du, P.X.**; Wang, S.; Yuan, P.*; *et al.*, **2022**. Structure of allophanes with varied Si/Al molar ratios and implications to their differentiation on Mars. *Icarus*.
- Du, P.X.**; Yuan, P.*; Liu, J.C.; *et al.*, **2020**. Effects of environmental Fe concentrations on formation and evolution of allophane in Al-Si-Fe systems: Implications for both Earth and Mars. *Journal of Geophysical Research: Planets*.
- Du, P.X.**; Thill, A.; Yuan, P.*; *et al.*, **2020**. Tailoring structure and surface chemistry of hollow allophane nanospheres for optimization of aggregation by facile methyl modification. *Applied Surface Science*.
- Du, P.X.**; Yuan, P.*; Liu D.; *et al.*, **2018**. Calcination-induced changes in structure, morphology, and porosity of allophane. *Applied Clay Science*.
- Du, P. X.**; Liu, D.*; Yuan, P.; *et al.*, **2018**. Controlling the macroscopic liquid-like behaviour of halloysite-based solvent-free nanofluids via a facile core pretreatment. *Applied Clay Science*.
- Du, P.X.**; Yuan, P.*; Thill, A.; *et al.*, **2017**. Insights into the formation mechanism of imogolite from a full-range observation of its sol-gel growth. *Applied Clay Science*.

PROFESSIONAL EXPERIENCE

2020 – Present – Macau University of Science and Technology (MUST) – Assistant Professor

2018 – 2020 – Guangzhou Institute of Geochemistry, Chinese Academy of Sciences (GIGCAS) – Post Doctoral

GRANTS (PI & co-PI)

National Natural Science Foundation of China (NSFC), 2026.1~2029.12, **PI**

Open Project for Innovative Platform of Meteoritical Research, Shanghai Science and Technology Museum, 2024.11~2025.11, **PI**

Science and Technology Development Fund (FDCT), 2023.12~2025.12, **PI**

Open Project of Guangdong Provincial Key Laboratory of Mineral Physics and Materials, 2023.11~2025.10, **PI**

Guangdong Basic and Applied Basic Research Foundation, China, 2023.1~2025.12, **PI**

Science and Technology Development Fund (FDCT), 2021.7~2023.7, **PI**

Faculty Research Grants of the Macau University of Science and Technology, 2021.12~2022.12, **PI**

National Natural Science Foundation of China (NSFC), 2021.1~2022.12, **PI**

National Natural Science Foundation of Guangdong Province, China, 2019.10~2022.9, **PI**

China Postdoctoral Science Foundation (First Class), 2018.7~2020.6, **PI**