

IMPERIAL

PhD Project Description

Project Title

Preserved Records of Life on Mars

Supervisors

Lead Supervisor: Mark A. Sephton

Co-supervisor(s): Jonathan Watson

Research Group

Organic Geochemistry

Project Summary

The quest to determine whether life existed, or still exists, on Mars is underway with a number of missions active and planned for the next few decades. For organic matter to be analysed it must be first preserved in a rock matrix. The project investigates the preservation of organic records of life in various matrices and considers their chemical stability over time.

- Inquiries are welcome and can be directed to Professor Mark A. Sephton, email: m.a.sephton@imperial.ac.uk

Research Context and Objectives

- Investigate the preservation of organic matter in Mars relevant materials
- Use advanced techniques to study organic molecules and minerals
- Reveal the targets that may contain evidence of past life
- Receive training in Organic Geochemistry

Collaborators and partners on the project:

Optional

Further reading:

Optional

Who are we looking for?

The project would suit candidates with a background in earth science, planetary science, chemistry or a subject that develops similar skills. Full training in all necessary techniques will be provided.

Commented [ML1]: Highly recommend to keep the entire document no longer than two pages, using an easily readable font size to keep it concise and accessible. Once completed, remove all comments and save the document as a PDF with a clear and easily identifiable file name.

Commented [ML2]: A concise and descriptive title that captures the essence of the research.

Commented [ML3]: Include here any relevant affiliations to research group, any useful links providing more information about your group and project.

Commented [ML4]: A short overview (approx. 150–200 words) suitable for the department's website facing the general public. Write in accessible language, avoiding excessive technical detail. Explain what the project is about, why it matters, and what the student will gain from it.

Commented [ML5]: Provide a concise overview of the scientific background, the key research questions, and the motivation behind the project. You may include figures or images to help illustrate the research area or objectives. Recommended length is up to two pages for the entire document.

Commented [ML6]: Are there any exciting collaborations or partners related to this project?

Commented [ML7]: Relevant papers or books to help students better understand the background and objectives of the project. We recommend no more than 5 sources.

Commented [ML8]: Candidate Profile
Specify what kind of student would be well suited for the project. This might include:

- **Academic background** – e.g. geoscience, engineering, physics, environmental science, computer science, etc.
- **Essential skills or experience** – e.g. data analysis, programming, lab techniques, fieldwork, numerical modelling, etc.
- **Desirable attributes** – e.g. curiosity, problem-solving ability, independence, teamwork, communication skills.
- **Training opportunities** – note what skills or experiences the student will gain through this project.