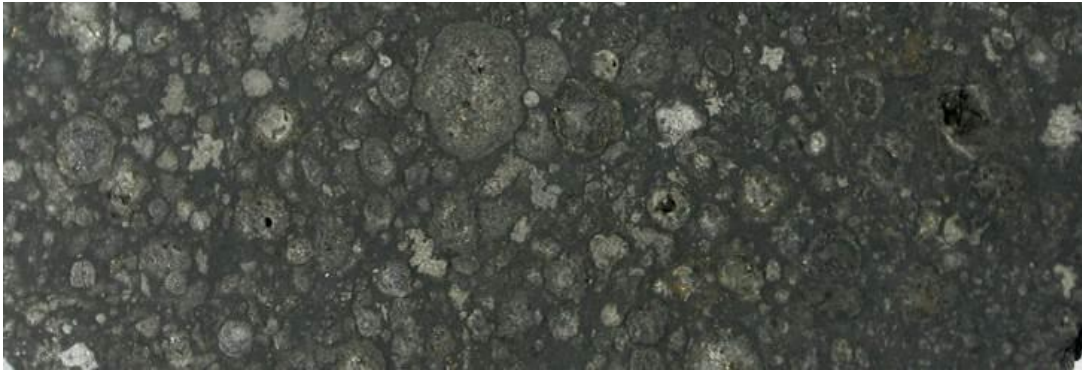




Astrobiology and meteorites from the early Solar System

Supervisors: Prof Mark Sephton & Dr Jonathan Watson

With collaboration opportunities (Dr Christian Potiszil, Okayama University Japan)



The Allende Meteorite, a carbon-containing left over from the early Solar System.

Unaltered since the formation of the solar system the asteroids populate the space between Mars and Jupiter. Natural collisions in the asteroid belt propel fragments towards the Earth where they fall as meteorites. These rocky left-overs contain materials produced in a time before the planets existed and life on Earth had originated.

The most ancient meteorites contain significant amounts of organic matter which is sensitive to alteration by heat and water and may have seeded the origin of life on Earth. By comparing the state of this molecular cargo alongside that of important mineral phases, a chronicle of the very first steps of planet formation can be established. Furthermore, the importance of organic and inorganic transformations by heat and water to producing life's raw materials can be understood.

The student will use several chemical and analytical techniques including sophisticated thermal and chemical pre-treatments followed by gas chromatography-mass spectrometry. There may be opportunities for travel to collaboration partners. The project would suit a candidate with enthusiasm for geochemistry, astrobiology and space missions with a background in Earth Science, Chemistry, Planetary Science or a subject with similar skills.

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- Details of how to apply are at: <https://www.imperial.ac.uk/study/pg/apply/how-to-apply/>.
- Funding details can be found at: <https://www.imperial.ac.uk/study/pg/fees-and-funding/scholarships/>.