

## In a galaxy far, far away... traces? Astrobiological potential of ichnology

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Organism-substrate interactions and their products – individual traces and ichnofabrics – are important biosignatures on Earth as they represent direct evidence of biological behaviour.

Nevertheless, ichnology received relatively little attention as a tool for searching life beyond Earth, and iconic traces such as burrows, footprints and coprolites have widely been ignored in the field of astrobiology, with few exceptions (microbially induced sedimentary structures, microborings).

In the context of astrobiology, traces are characterized by the following characteristics:

- 1) Trace fossils preserve the activity of soft-bodied organisms;
- 2) Biogenic structures are resilient to processes that obliterate other biosignatures (e.g. mechanical and chemical degradation, diagenesis, tectonism, metamorphism);
- 3) Traces are very visible biosignatures;
- 4) Traces indicate environment and behaviour;
- 5) Traces are evidences of behaviour, therefore they can indicate life independently from morphology, size and biochemistry of tracemakers.

These properties make ichnology a promising tool for the search for present and past life beyond Earth.

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