

MELOS LIFE SEARCH PROPOSAL: SEARCH FOR MICROBES ON THE MARS SURFACE WITH SPECIAL INTEREST IN METHANE-OXIDIZING BACTERIA

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Among the planets and giant satellites in our solar system, the characteristics of Mars are most similar to those of Earth. This may suggest that it may be possible for life similar to terrestrial life to arise and to survive on Mars. We propose to search for microbes on Mars, 5 to 10 cm below the surface. The first effort should be to identify locations where methane is emitted from underground. The rover will approach the methaneemitting site, where soil will be collected and analyzed. A combination of fluorescent dyes will be used to detect candidate cells using a fluorescence microscope[10]. Possibly in another mission, putative cells will be hydrolyzed and analyzed by HPLC and/or mass spectral analysis to define the characteristics of the candidate cells, which will indicate the origin of the candidate cells.

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