



## **Experimental investigation of thermal sensors under varying pressure conditions**

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The effective thermal conductivity of the granular material covering the top few meters of the surfaces of many extraterrestrial bodies like the Moon, Mars, or asteroids is a key parameter for planetary modeling. The extreme temperatures and pressures dominating many of these bodies are influencing the effective thermal conductivity of the top surface layers as well as the measurement of this parameter. On earth the perhaps most commonly used method for measuring the thermal conductivity of soils and sands in-situ is the line heat source technique. Therefore it is tempting to use it also on planetary surfaces.

The already well known line heat method was investigated for application in a low pressure/vacuum environment. Laboratory experiments with five different line heat sensors were performed under varying pressure conditions on various granular analogue materials like glass beads, broken lava or the JSC-1A lunar mare analogue.