The FABULAB project: low-budget experiments in the Solar System

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We present the conception and instrumentation of a FAlling BUcket LABoratory (FABULAB). The bucket, as part of a 12-meter-long Atwood machine, contains granular material and an array of inexpensive instruments controlled from ground using wireless technology. Simple and, above all, FAST experiments in granular matter can be performed at different acceleration environments into the bucket while it falls (or rises), eventually resembling the situation in some planets of the solar system. Amongst these experiments there is the study of crater formation. In this seminar, we present some preliminary results on crater formation strongly suggesting that the granular friction depends on the effective gravity.