

Abstract Submitted
for the TSF06 Meeting of
The American Physical Society

Evolution of grain size and morphology of Si thin films fabricated on lunar regolith glass C. GRAMAJO, L. WILLIAMS, A. FELTRIN, A. ALEMU, A. FREUNDLICH, University of Houston — A critical requirement for space colonization and in particular for its lunar exploration component is the availability of large amounts of electric energy. Novel architectures which involve the in situ manufacture of solar cells on the Moon using indigenous lunar materials have been proposed to meet this need [1]. In support of this effort, this study delves on several aspects of interest starting from the fabrication of a glass substrate from lunar regolith, to the deposition of Si films and the effects of thermal processing induced changes on the properties of these films. The experiments were implemented using several types of commercially available glasses as well as in-house fabricated regolith glass. In particular, the study provides valuable information on the effect of temperature on the interactions between Si and the substrates, and also the interaction between metallic contact layers and Si, which could affect regions beyond their common interface. This insight sheds a light on the evolution of grain size and morphology of Si thin films grown on lunar regolith.

C. Gramajo
University of Houston

Date submitted: 21 Sep 2006

Electronic form version 1.4