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Internal stress generation during electrochemically deposited Volmer-Weber thin films. TIANZHI LUO, ROBERT CAMMARATA, Johns Hopkins University — The real-time *in situ* stress generation during electrochemical deposition of metallic thin films deposited by an island (Volmer-Weber) growth process will be presented. The stresses were measured using a sensitive substrate curvature system optimized for use in an electrochemical cell. Films were deposited on crystalline and amorphous substrates. In many cases, the films displayed an early stage compressive stress, followed by a large tensile jump, and finally ending with a compressive stress at large thickness. Also, interruption of growth led to significant relaxation of the stress. These behaviors were qualitatively similar to those found for evaporated films, and suggest that similar stress generation mechanisms operate for both types of depositions. In other systems, the stress generation behavior was much different, generally displaying a small compressive stress throughout. Correlation of the stress behaviors with microstructural evolution will be presented, and possible mechanisms for the generation of the stresses will be discussed.

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