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Post-deposition stress evolution in Cu and Ag thin films

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Keywords

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Abstract

Evolution of stresses in thin Cu and Ag films after deposition by thermal evaporation in UHV system is studied. Thin films were deposited on 100 µm thick Si substrate at room temperature. Deposition rates for the Cu and Ag films were 0.5 A/s and 0.9 A/s, respectively. The total thickness ranged from 7.7 up to 109 nm. The average stress in the films was determined by measuring the radius of samples curvature. The behavior of stress evolution curves is explained by two mechanisms of stress generation: filling grain boundaries and islands coalescence.