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**STM, LEED and IPS study of Ag/Al(100)** JEAN F. VEYAN, MARCOS FLORES, P. HÄBERLE, Departamento de Física, Universidad Técnica Federico Santa María — The room temperature growth of thin layers of Ag on Al(100) has been shown to be in the Stranski-Krastanov mode. A different behavior is seen in this system, close to LN<sub>2</sub> temperatures. From the coverage dependence of the inverse photoemission (IPS) intensity, we can infer an epitaxial layer by layer growth mode. This is confirmed by scanning tunneling microscopy (STM) and low energy electron diffraction (LEED) measurements. For 0.5 ML Ag coverage, the LEED pattern shows a (1x5) surface reconstruction which agrees with STM images displaying long stripe structures along the [11] direction. We attribute these structures to the formation of a surface alloy. For higher coverages, the stripe structures are still present but with a high density of dislocations, which precludes the observation of a LEED pattern between 4 and 7 ML. From 8ML and up the 1x1 LEED pattern is recovered consistent with a layer by layer growth. The interest in this system resides in the existence of quantum size effects displayed by the unoccupied electronic states in the Ag overlayer.

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