# Abstracts

## Elastic Surface Waves Guided by Thin Films: Gold on Fused Quartz

*L.R. Adkins and A.J. Hughes. "Elastic Surface Waves Guided by Thin Films: Gold on Fused Quartz." 1969 Transactions on Microwave Theory and Techniques 17.11 (Nov. 1969 [T-MTT] (Special Issue on Microwave Acoustics)): 904-911.*

To study some of the properties of acoustic waves guided by thin films, experiments on dispersion and transverse tightness of binding were performed in the frequency range 5 MHz to 14 MHz. The movable wedge technique of launching and receiving surface wave signals was utilized. The guidance structure consisted of thin gold films deposited on fused quartz. High resolution experimental results were obtained by modifying the wedges to have a very narrow active region. The data were compared to results predicted by a simplified theoretical model which we have developed. This model is complementary to that of Tiersten in that we match both components of the vector potential while in Tiersten's model one matches a single vector potential component and its normal derivative. Curves calculated by our approach appear to be virtually identical with those of Tiersten for the (width/thickness) ratios treated experimentally, but are much easier to obtain numerically for any particular value of the ratio. For smaller values of the (width/thickness) ratio, our model and that of Tiersten differ slightly. Data for dispersion and mode tightness of binding were found to be in substantial agreement with our theoretical predictions. In addition, the theoretical model predicts features such as location of low-frequency cutoffs and tightness of binding of the antisymmetric modes which have not been completely investigated experimentally.

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