

1921

## Hall Effect in Thin Silver Films

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### Recommended Citation

Steinberg, J. C. (1921) "Hall Effect in Thin Silver Films," *Proceedings of the Iowa Academy of Science*, 28(1), 115-115.

Available at: <https://scholarworks.uni.edu/pias/vol28/iss1/23>

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## HALL EFFECT IN THIN SILVER FILMS.

J. C. STEINBERG

*(Abstract)*

The Hall Effect as a function of thickness has been investigated in chemically deposited films of silver, of thickness ranging from 40 to 200 millimicrons, and the Hall Coefficient found to be independent of both magnetic field, for fields up to 20000 Gauss, and thickness. The specific resistance of the same films increases as much as 200 per cent for some of the thinner films. These results are in good agreement with those obtained by Dr. G. R. Wait last year.

Observation would seem to indicate that the Hall Effect depends primarily upon the mass per unit area, rather than upon the particular manner in which the particles of silver are deposited, provided that the arrangement is sufficiently irregular to annul the possible effects due to the magnetic field of the atom. Irregularities in the mass per unit area, which are practically unavoidable in the chemical deposition method, account for much of the rather large experimental error.

In order to test these observations, the work is being extended to films secured by evaporating silver wire, whereby it is hoped to secure a more uniform mass per unit area and a different film structure. Attempts at crystalline growth in films probably will be made in order to find the effect of crystalline arrangement. There is considerable evidence that much of the explanation of disagreement between Electron Theory and experiment, may be found in considering the neglect of the theory to take into account the position of the electron in the space lattice of the crystal.

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