PHASE SHIFT IN SCATTERED ELECTRON WAVES

by

Henry Eltinge Breed

This thesis is respectfully submitted to the Faculty of Rensselaer Polytechnic Institute in partial fulfillment of the requirements of the degree of Doctor of Philosophy in Physics.

January 20, 1955

Troy, New York

ABSTRACT

This study was planned to search for evidence of internal phase shift in the atoms of heteronuclear diatomic solids. The motivation for the study was a desire to test a possible explanation of intensity anomalies that appeared pursuant to analysis of some electron diffraction patterns. The discovery of these anomalies was a result of analysis based on the simplifying assumption that the electron scatters without phase shift. The explanation to be tested assumes that there is a phase shift on scattering, and the work hereafter described is a comparison of these two assumptions about scattering. The comparison indicates the validity of the latter assumption.