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MAGNETIC AND NATURAL ROTATORY DISPERSION IN ABSORBING MEDIA

E. O. HULBURT

(ABSTRACT)

A *theoretical discussion* based on the electron theory of H. A. Lorentz yielded formulas for the magnetic rotatory dispersion in isotropic absorbing media and for the natural rotatory dispersion in optically active absorbing media. In a few instances where sufficient data enabled calculation, the new magnetic rotation formula has given accurate agreement with experimental values, thereby accounting for the discrepancy previously noted between the observed Verdet angles and those calculated from a theory which neglected absorption.

THE DEFLECTION OF A STREAM OF ELECTRONS BY ELECTROMAGNETIC RADIATION

E. O. HULBURT

(ABSTRACT)

A *theoretical calculation,* based on classical electrodynamics, gives for the maximum angular deflection, when certain approximations are made, $He/m\omega$, where $\omega/2\pi$ is the frequency of the radiation, and H is the field due to it. For sunlight ($H=.04$) the value is only 4×10^{-10}, far too small to detect experimentally, while for intense x-rays, the value is of the order of 10^{-13}. Recently C. J. Lapp reported having obtained an observable deflection with x-rays. If further research should confirm this result, it would appear to be in direct conflict with the classical theory.

ON SUPER-REGENERATION

E. O. HULBURT

(ABSTRACT)

A simple mathematical analysis of super-regeneration yielded conclusions, in accordance with observation, that the super-regenerative system amplifies without distortion and that the amplification increases with increase of signal frequency and with decrease of variation frequency.

Two single tube super-regenerative circuits, interesting because of their simplicity, are described.

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