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Phenomena of Cathode Sputtering

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both, the power factor ψ and dielectric constant K may be obtained from simple formulae. An investigation of several solid dielectrics over a band of frequencies ranging from 600,000 to 1,700,000 cycles per sec. showed K to be practically independent of frequency and ψ to change in a way that cannot be predicted. Measurements on about forty commercial dielectrics showed hard rubber to have much smaller losses than any other. Low losses were always accompanied by small dielectric constants, the reverse, however, not always being true.

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PHENOMENA OF CATHODE SPUTTERING

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When metal is deposited cathodically upon a glass plate a film is found upon the side of the plate away from the cathode. In the study of this deposit both alternating and direct potentials were employed. An attempt to increase the deposit by various reflecting surfaces gave negative results. A possible explanation of the phenomonen is offered, based upon the assumption that the metallic particles receive a positive charge after leaving the cathode. An attempt to sputter non-conductors in the form of metallic oxides gave negative results.

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THE OPTICAL CONSTANTS OF CRYSTALS OF SELENIUM AND TELLURIUM FOR WAVE-LENGTHS FROM 3000 TO 5000 A

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The measurements were made by a photographic method, for two positions of the crystal (1) with the optic axis parallel, and (2) with the axis perpendicular, to the plane of incidence. Two sets of optical constants were found for each substance. For *selenium,* in the parallel position the index of refraction was found to vary from 3.4 to 4.4, and the reflecting power from 0.38 to 0.46; in the perpendicular position the index varies from 2.3 to 3.1, and the reflecting power from 0.41 to 0.34. For *tellurium,* in the parallel position the index varies from 1.9 to 2.9, and the reflecting power from 0.10 to 0.27; in the perpendicular position the index varies from 1.7 to 2.7, and the reflecting power from