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X-Ray Extinction in Piezoelectrically Oscillating Quartz

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X-RAY SCATTERING FROM A LINEAR CHARGE DISTRIBUTION

G. W. STEWART

In n-alcohols and n-paraffins the molecules lie parallel with such a configuration and distribution of scattering centers that one desires to know the character of x-ray scattering from a linear charge wherein there is a break in the continuity. The computation shows that a certain broken line charge will give a distribution of x-ray somewhat similar to that of two charges separated, not by the distance between their centers of charge but approximately 50 per cent more than this distance.

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THE LIQUID STRUCTURE OF N-ALIPHATIC ALCOHOLS

G. W. STEWART

There is substantial agreement that the molecules of n-aliphatic alcohols lie generally parallel, with the alternate ends of a longitudinal series of molecules being a pair of polar ends and a pair of non-polar ends. The suggestion has been made that there is no transverse space relationship of the polar pairs. The reasons for and against this suggestion are stated and it is concluded that there is high probability that their polar groups in n-alcohols do have a three dimensional space relationship in the liquid state.

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X-RAY EXTINCTION IN PIEZOELECTRICALLY OSCILLATING QUARTZ

J. R. FREDERICK AND G. W. FOX

Fox and Fraser[1] have investigated the extinction of x-rays in piezoelectric quartz crystals by photographic methods for both the oscillating and non-oscillating cases. Apparent increased blackening of the photographic plate was observed for both the dif-

[1] Unpublished work.

fracted and central x-ray beams. Jauncey and Deming [2] have performed a similar experiment on extinction using an ionization chamber and electrometer and have obtained results which are in disagreement with those of Fox and Fraser in regard to the central beam. We are repeating these observations using an ionization chamber and an electrometer tube to check the results of either of the above investigations. The evidence so far seems to give support to the work of Jauncey and Deming regarding the central beam.

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SOME OBSERVATIONS CONCERNING THE EVAPORATION OF METALS FROM HOT FILAMENTS

M. ALDEN COUNTRYMAN

For effective evaporation of metals from hot filaments, the metal to be evaporated, if different from the filament substance, must wet and cling to the hot filament used.

A number of filament materials have been tried and the metals which wet each are reported.

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TENSORS AND THE CALCULATION OF VIBRATIONAL FREQUENCIES OF CRYSTAL PLATES

R. G. WILSON AND J. V. ATANASOFF

A tensor method has been developed for the calculation of the frequencies of vibration of an infinite plate of any crystalline substance cut at any orientation. By the use of this theory a set of curves have been calculated showing the three characteristic frequencies for plates of quartz cut at various orientations. These results are in good agreement with the experimental work of the authors and other observers.

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[2] Phys. Rev. 48, 152 (1935).