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Lens Effect of Pressure Windows

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Since any incident beam gives rise to diffuse scattering (A cos Θ) plus directed scattering B cos m $(\alpha - \Theta)$ centered about a line making a greater angle with the crystal surface than does the incident beam it follows that the scattering is accompanied by an energy exchange.

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LENS EFFECT OF PRESSURE WINDOWS

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The lens effect of pressure windows has been studied at pressures as high as 30,000 atmospheres. These lens effects are found to be due to four primary causes. 1st. Pseudo lens effect caused by temperature gradients in the material under pressure. 2nd. The bulging of the outside surface of the pressure windows. 3rd. The Pseudo lens effect due to unequal strains in the glass. 4th. The bulging of the inside surface of the window combined with the difference of index refraction of the material under pressure and the glass or quartz of the window. Methods for correcting for these lens effects are outlined.

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MEASUREMENT OF MEAN LIFE OF CADMIUM 2^3P_1 BY THERMAL MOTION OF EXCITED ATOMS DURING LIFE TIME

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Since the experiments of Dunoyer in 1914 some interest has developed in an experiment to show the diffusion of excited atoms in various types of resonance lamps. None of these have been successful due to the short life time of the excited states in the vapors selected. Since experiments made in this laboratory indicate a long life for the Cadmium 2^3P_1 state, an attempt was made to measure the life of this state by the motion of the excited atoms in a unidirectional beam shot from a gun of the boiler type, and excited by passing through a narrow beam of light from a Cadmium discharge. The resonance radiation was photographed, a shield hiding the part of the beam in which the atoms were being