APPARATUS AND DEMONSTRATION NOTES

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This department welcomes brief communications reporting new demonstrations, laboratory equipment, techniq to teachers of physics. Notes on new applications of older apparatus, measurements supplementing data s information which, while not new, is not generally known, procurement information, and news about apparatus suitable for publication in this section. Neither the *American Journal of Physics* nor the Editors assume responsi the information presented. Submit materials to James L. Hunt, *Editor.*

Demonstration of conoscopic pictures

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A conoscopic picture is an optical interference pattern generated by a polarized conical beam impinging on a birefringent plate.

Conoscopic methods are useful in quickly determining the essential features of birefringence phenomena, e.g., the number of axes of the crystal plate, the refractive indices, the angle between the axes, and the plate orientation relative to the axes. Conoscopic meth linear optics and light modulation ods are pedagogically useful in illu light in anisotropic media.[1,2]

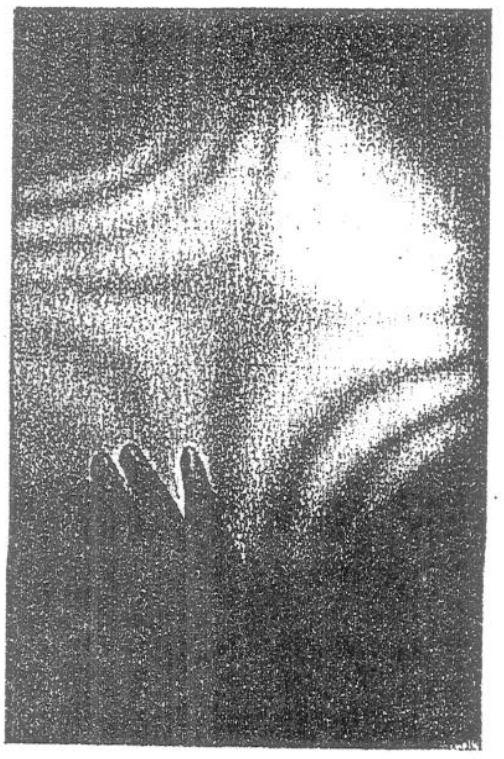

Fig. 1. Conoscopic picture using a polished mica slice sandwiched between polarizers.

The usual method for displaying to focus an illuminating beam thro talline plate, and then to project via a lens onto a screen. In such a the beams is small and even with a is not possible to achieve a bright for displaying to a group. One way lem is to use a complicated metho tion microscope coupled to a vid video camera.

In this note, a particularly simp that easily yields large conoscopic on additional optical devices.

A thin (<5 mm) polished cryst between two polarized sheets and (25 V, 250 W). A household fan i crystal plate sufficiently cool. For axes lie within 100° of each other, a dimensions are 20–50 mm can ge conoscopic picture on a screen 20– shows the pattern generated by a s sions 0.25 mm $\times$ 50 mm $\times$ 50 mm.

Striking color patterns a meter readily achieved from gypsum, poly

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[1]A. Sommerfeld, *Lectures on Theoretical Ph* demic, New York, 1970), pp. 172–178.
[2]M. Born and E. Wolf, *Principles of Optics* pp. 694–703.
[3]B. Sh. Perkalskis, *Wave Phenomena an* (Tomsk University, Tomsk, 1984), in Russ