Conoscopic interferometers are used to identify minerals, to investigate the structure of biological tissues, as well as to study the optical properties of crystals. A conoscopic interferometer consists of an optically anisotropic specimen placed between two crossed linear polarizers and illuminated by a convergent light beam. A conoscopic interference pattern consists of isogyre and isochromate fringes. For accurately measuring the directions of the optic axes of anisotropic crystals, it is desired that the dark isogyre fringes be eliminated from the interference patterns. To achieve this circular polarizers are needed to replace the conventional linear polarizers in the interferometer. A circular polarizer consists of a linear polarizer and a quarter wave plate. However, it only applies to monochromatic light due to the quick dispersion of the quarter wave plate. We therefore propose to use Fresnel rhombs to construct dispersion-free circular polarizers for conoscopic interferometers. The Fresnel rhomb is a prism that transfers a linearly polarized incident light into a circularly polarized emerging light through total internal reflection. Comparing to wave plates, Fresnel rhombs have a broad application wavelength range that covers the whole visible. We proved that Fresnel rhombs can be used to construct circular polarizers that completely eliminate the dark isogyres. This technique can be equally applied to all wavelengths in the visible. This research is supported by our benefactor Frank Rodeffer, and by the College of Arts and Sciences Undergraduate Research and Scholarly Activity Grants.