**Birefringence imaging of minerals using a tilting stage**

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We show that by combining the Metripol imaging system (see www.metripol.com) with a tilting stage it is possible to obtain very precise birefringence information on crystals. The Metripol microscope uses a combination of a rotating polarizer and a circular analyser to separate out three types of image, one representing the light transmission through the specimen, one showing the orientation of the optical indicatrix at any point in the image, and one giving quantitative information on $|\sin\delta|$, where $\delta$ is the phase shift of the light. Whe data are collected as a function of two angles of tilt of the microscope stage it is possible to solve equations to give birefringence information both in-plane and out of plane of the specimen. This method shows potential for the use of automatically identifying crystals, especially minerals in microscope rock sections.