Practical applications of PLM

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Although the modern polarized light microscope (PLM) is more advanced than ever, it remains underutilized due to a combination of factors. The most significant of which is that in the university setting PLM is included in fewer programs and when so, in less detail. In the geosciences, the greatest capability of the PLM is to provide images that immediately reveal rock texture and provide data for mineral characterization and identification. For this reason, despite its underutilization, the PLM remains an essential microanalytical tool, particularly in petrology, mineralogy and crystallography. Unfortunately, many researchers and educators are under-informed of the capabilities of the PLM, and choose to exclusively use electron, X-ray, ion, Raman and force-based techniques.

Having worked in research, consulting and teaching laboratories, with ready access to a wide variety of microanalytical techniques, the PLM is almost always an integral part of an investigation, providing independent diagnostic data and data complimentary to other microanalytical techniques. This talk will discuss the role of the PLM in research, consulting and teaching, providing: 1) examples of industrial problems solved, 2) research areas benefiting from PLM, 3) a summary of teaching resources aimed at providing PLM instruction in a relatively short time, 4) exposure to new or little publicized techniques and methods, and 5) the integration of PLM with other techniques, highlighting its unique advantages.

Colorblindness as a handicap to learning petrography and polarized light microscopy and aids for the color deficient microscopist

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The ability to accurately observe color is perhaps one of the most important abilities for anyone wishing to learn how to use the polarized light microscope. Many optical properties are observed using various color dependent phenomena: pleochroism, interference colors, Becke lines, etc. Statistically, approximately 10% of male students and 0.5% of female students will have some degree of color deficiency. An introduction to the physiology of color vision and color deficiency will be presented. Examples of how optical properties may be misinterpreted by a color deficient individual will also be presented. Finally, simple techniques that can be used to aid a color deficient student will be examined.