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RESTORING SIGHT, ADVANCES IN FERTILITY TREATMENTS THROUGH LASERS, AND BETTER VISIBILITY (LIDAR) FOR PILOTS AT FRONTIERS IN OPTICS MEETING

WASHINGTON, Aug. 23 – Frontiers in Optics 2007 (FiO), the 91st Annual Meeting of the Optical Society of America, will be held from Sept. 16-20 in San Jose, Calif., alongside Laser Science XXIII, the annual meeting of the American Physical Society Division of Laser Science.

Reporters interested in obtaining a badge to attend the meeting should contact Colleen Morrison at 202.416.1437, cmorri@osa.org.

Detecting Malaria with Light

It is now possible to analyze large tissue samples for signs of malaria with much greater detail and accuracy. To do this, scientists at the University of Waterloo in Ontario, Canada and Spain's University of Murcia used a Macroscope[®], a patented technology developed by Biomedical Photometrics Inc., which enables imaging of much larger tissue samples at a very high resolution – in this case tissue infected with malaria. Using their new patented method and the Macroscope, the researchers measured tell-tale changes in the polarization of light reflecting off a sample of infected tissue.

The malaria parasite changes the polarization of light and this has been exploited to measure population density in blood samples using polarimetry. Melanie Campbell, a researcher at the University of Waterloo and immediate past president of the Canadian Association of Physicists, and her colleagues have extended this approach to analyzing tissue samples. They looked at both infected and normal tissue in their experiments, and used a confocal laser scanning Macroscope to measure changes in polarization and highlight the levels of malaria parasites in the tissue samples. By using the Macroscope to image larger tissue samples at higher resolutions, the severity of infection by the malaria parasite may be accurately quantified.

The technique allows large areas to be imaged in a single scan as opposed to the smaller field available with a traditional microscope. This avoids time-consuming "stitching" of a large number of smaller images and increases data accuracy. Not only could this new approach improve the assessment of the severity of cases of malaria, but it could be extended to assessing different tissues infected with other kinds of biological abnormalities – possibly including proteins associated with Alzheimer's disease – that also interact with polarized light. (Paper FThK1, "Confocal Polarimetry Measurements of Tissue Infected with Malaria")