Contribution ID: **134** Type: **Poster Presentation**

Simulation of a malaria nanoplasmonic biosensor based on extraordinary optical transmission.

In this study we present the theoretical analysis and optimization of a 2D photonic crystal grating made from gold (Au) for sensing Plasmodium falciparum (Pf) parasites. The study is based on a previous reported plasmon sensor, which is the first experimental demonstration of Plasmodium detection in whole blood samples by directly probing antibody-antigen interactions with extraordinary optical transmission (EOT). The sensor is made of equal distance periodic circular nanoholes on a gold planar surface. When probed by TM polarized light, these nanoholes give rise to EOT resonant peaks resulting from the hybridisation between surface plasmon polaritons (SPPs) and optical modes inside nanoholes. By monitoring these transmission spectrum peaks, the induced refractive index perturbation due to Pf-antibody-antigen interactions can be accurately measured.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

PhD

Primary author: Mr KIYUMBI, A.S. (Department of Physics, Stellenbosch University)

Co-author: Prof. TAME, M.S. (Department of Physics, Stellenbosch University)

Presenter: Mr KIYUMBI, A.S. (Department of Physics, Stellenbosch University)

Session Classification: Poster Session

Track Classification: Track C - Photonics