Contribution ID: **122** Type: **Oral Presentation**

Simultaneous measurement of EFISH in transmission and in reflection from the Si/SiO2 interface of a thin Si membrane.

Wednesday, 10 July 2013 14:10 (20 minutes)

Abstract content
   (Max 300 words)

Optical second harmonic (SH) generation is a versatile tool to investigate charge separation processes at buried interfaces of centrosymmetric systems. Using femtosecond laser pulses (800 nm, 80 fs, 80 MHz), we perform a simultaneous measurement of the electric field induced second harmonic (EFISH) in transmission and in reflection at the silicon/silicon dioxide (Si/SiO2) interface from a thin silicon membrane (˜10 µm). Experimental results will be presented and discussed. We find that, in the case of reflection, the SH signal increases quadratically with incident intensity, as could be expected, and eventually saturates. However in the case of transmission, the SH signal also initially increases quadratically, reaching a maximum before decreasing with even higher input intensities. Possible explanations are presented briefly and planned future work suggested.

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

yes

Level for award
 (Hons, MSc,
   PhD)?

PhD

Main supervisor (name and email)
and his / her institution

Erich Rohwer (egr@sun.ac.za), Laser Research Institute, University of Stellenbosch

Would you like to <br> submit a short paper <br> for the Conference
 Proceedings (Yes / No)?

Yes

Primary author: Mr NDEBEKA, Wilfrid (Laser Research Institute, University of Stellenbosch)

Co-authors: Dr STEENKAMP, Christine (Laser Research Institute, University of Stellenbosch); Prof. ROHWER, Erich (Laser Research Institute, University of Stellenbosch); Prof. STAFAST, Herbert (Institute of Photonic Technology (IPHT), Jena, Germany); Dr NEETHLING, Pieter (Laser Research Institute, University of Stellenbosch)

Presenter: Mr NDEBEKA, Wilfrid (Laser Research Institute, University of Stellenbosch)

Session Classification: Photonics

Track Classification: Track C - Photonics