



Contribution ID: 130

Type: Oral Presentation

Structural and optical properties of TiO₂ photoelectrodes fabricated for photoelectrochemical water splitting

Thursday, 7 July 2022 15:00 (15 minutes)

Hydrogen production by photoelectrochemical water splitting (PECWS) is becoming topical, as clean methods of producing hydrogen are now a necessity. TiO₂ is a wide band gap semiconductor material, which is suitable for PECWS by virtue of ease of nanofabrication, excellent photosensitivity and chemical stability among other factors. The present study explores the structural and optical properties of photoelectrodes developed by carefully transferring anodically synthesized TiO₂ nanotubular thin films onto transparent conductive glass. Fourier Transform Infrared Spectroscopy measurements are presented to give insight into light absorption properties of the bi-layer photoelectrodes. The photocurrent density of the photoelectrodes is characterised in a three-electrode electrochemical setup. A reliable mechanism of transferring the delicate thin films and the influence of the synthesis parameters on optical response are discussed.

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

No

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

Postdoc

Primary author: Dr SULIALI, Nyasha (Nelson Mandela University)

Co-author: Prof. BOTHA, Johannes Reinhardt (NMU)

Presenter: Dr SULIALI, Nyasha (Nelson Mandela University)

Session Classification: Physics of Condensed Matter and Materials

Track Classification: Track A - Physics of Condensed Matter and Materials