



Contribution ID: 297

Type: Oral Presentation

## PLENARY: The SI Redefined: Counting Atoms, Single-Electron Tunnelling and Optical Atomic Clocks

Wednesday, 6 July 2016 08:40 (1 hour)

**Abstract content** &nbsp; (Max 300 words) <a href="http://events.saip.org.za/getFile.py/?target=\_blank">Formatting & Special chars</a>

The International System of Units is undergoing a redefinition where fundamental constants are to serve as the defining reference values for all seven base units and for all derived units in the future. In 2018, the kilogram, ampere, mole and kelvin will be redefined with the others to follow. This opened exciting new research and application opportunities for metrologists: counting atoms for the kilogram and mole, single-electron tunnelling for the ampere, dielectric constant gas thermometry for the kelvin, etc.

What research have been conducted, are in progress or are planned internationally and in South Africa for the redefinition, the realisation of the units and its implementation? Find out what the Watt balance, Avogadro, Frequency Comb and Quantum Hall projects at the NMISA entail and how the traceability chain will be shortened for Africa.

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

No

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

N/A

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

N/A

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

Yes

**Please indicate whether this abstract may be published online (Yes / No)**

YES

**Primary author:** Dr LOUW, Wynand (NMISA)

**Presenter:** Dr LOUW, Wynand (NMISA)

**Session Classification:** PLENARY

**Track Classification:** Track H - Plenaries