

**POSTGRADUATE BURSARY: PHD PHYSICS/ ELECTRICAL / ELECTRONIC
ENGINEERING X1**

PROJECT: KIBBLE WATT BALANCE

**Bursary allowance R 150 000.00 per annum
(plus prescribed registration and tuition fees)**

PURPOSE OF THE POSITION

The international definition of the kilogram in the International System of Units (SI) has not been changed since 1889. The kilogram (unit of mass) is defined as the mass of a Platinum-Iridium (Pt-Ir) alloy cylinder that is kept at the International Bureau of Weights and Measurements (BIPM) in Paris, France since 1889. This is about to change in 2018.

The Physical Metrology Division has a vacancy for a PhD student, assisting in the development of the optical subsystems of a Kibble Watt balance and investigating the use of structured light and quantum optics in metrology.

To assist in the theoretical and experimental investigate the use of structured light and quantum optics in metrology, thereby providing support for, among other applications, the development of an interferometer in the Kibble Watt balance. Helping to establish and maintain the optics and photonics capability

The successful candidate will have an opportunity to gain work experience at NMISA during vacations.

MINIMUM QUALIFICATIONS, SKILLS AND EXPERIENCE

- Masters in Physics or Electrical/Electronic Engineering
- South African citizen
- Any of the following would be an advantage:
 - Background in the theoretical aspects of optics and photonics
 - Experience in optical experimental work
 - Experience in metrology
 - Publications in peer review international technical journals
 - General programming capability (e.g. Labview and/or Matlab)

DUTIES AND RESPONSIBILITIES:

- Perform experimental and theoretical research in the use of structured light and report results through the publication of technical peer reviewed journal articles
- Collaborate with national and international research institutions (universities and national metrology institutes)
- Present technical papers at local or international workshops and conferences
- Maintain laboratory and equipment

PERSON SPECIFICATION

The ideal candidate will possess the following qualities and competencies:

- A keen interest in applied and experimental based physics/ electronics
- Deadline conscious
- Enthusiastic and self-motivated
- Good reasoning ability focused on problem solving with independent, proactive action
- Good planning and organising skills with analytical approach to work tasks
- Compliant in order to follow organisational and laboratory rules such as policies and procedures
- Honesty and ethical behaviour is of the utmost importance when delivering on assigned tasks within the NMISA
- Ability to function within a team to achieve a common goal

Please note:

NMISA subscribes to and applies the principles prescribed by the Employment Equity Act. Preference will be given to previously disadvantaged candidates who meet the requirements and who will add to the cultural and gender diversity of the organisation. The NMISA Human Capital Development programme, which this Studentship forms part of, is focused on recruiting the following candidates in order of preference: Coloured, Indian and African.

Interested and suitably qualified persons may forward all supporting documentation required (updated CV, certified educational qualifications, certified academic record and certified ID.) when applying for the position email NMISA Human Resource at careers@nmisa.org Only candidates with all supporting documents will be considered for the position. Clearly indicate which position you are applying for.

Closing date for applications: **31 January 2019**

Correspondence will be limited to short-listed candidates only.

By applying for this position at the NMISA, the applicant understands, consents and agrees that the NMISA may solicit a credit and criminal report from a registered credit bureau and/or the SAPS in relation to positions that require trust and honesty and/or entails the handling of cash or finances and may also verify the applicant's educational qualifications and employment history.