NITheP cordially invites you to a seminar by:

**Dr Jacobus Diener**  
*NITheP, Stellenbosch*

**Date:** Wednesday 30 October 2013  
**Time:** 14:00  
**Venue:** NITheP Stellenbosch Node, Seminar Room

**TITLE:** The properties of magnetized nuclear matter and its influence on the behaviour of neutron stars

**ABSTRACT:** The inferred surface magnetic field of highly magnetized neutron stars is between $10^{14}$ and $10^{15}$ gauss. However, the magnetic field in the interior of the star is expected to be much stronger and could increase in strength by about three orders of magnitude. Thus, magnetic fields of around $10^{17}$ gauss may well be present in the interior of the star. The neutron star interior is expected to, at least in part, consist out of saturated nuclear matter. Therefore, if nuclear matter properties are influenced by such strong magnetic fields, the behaviour of neutron stars could also be affected by such strong magnetic fields.

In this talk I will discuss the properties of strongly magnetized symmetric, as well as charge neutral beta-equilibrated, nuclear matter. Based on this discussion I will also speculate on the impact that sudden changes in the neutron star's magnetic field might have on the star's moment of inertia as well as some of its other properties.

Navrae/Enquiries: René Kotzé  
Tel: 021 808 2653  
Email: renekotze@sun.ac.za