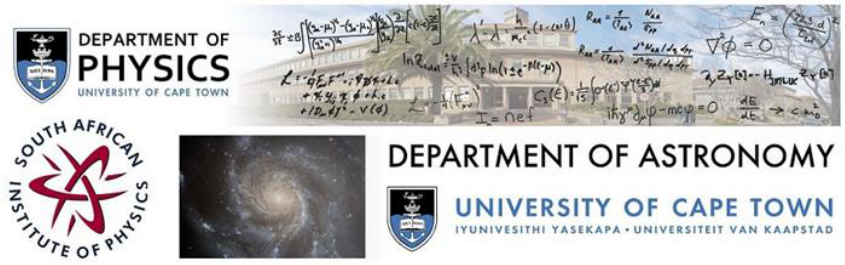

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HYDROGEN FUEL CELL STUDIES USING NEUTRON RADIOGRAPHY

Thursday, 7 July 2016 10:00 (20 minutes)

Abstract content
   (Max 300 words)
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The neutron, as radiation probe, has a high penetration capability through dense materials as well as unique and effective detection characteristics for low Z materials such as hydrogen and hydrogen based compounds, which are inaccessible to X-ray radiography.. Due to the high neutron attenuation of hydrogen, neutron radiography and tomography techniques have proven itself capable of visualising distribution of hydrogen / compounds even imbedded within dense materials such as Pb, Cu and Fe. The transport of water in porous media such as high density civil engineering materials is one application where neutron radiography allows for the qualitative and quantitative analysis of two phase flow processes within the objects. This presentation focusses on recent studies where neutron radiography has been applied in the detection of hydrogen compounds in a working hydrogen fuel cell. Neutron radiography is a key analytical diagnostic extensively applied in the optimisation of the fuel cell. The principle of the technology (radiography & fuel cell technology) and what can be learned through neutron radiography about the usage of a fuel cell in the electrolysis process, using the reverse operation of a fuel cell, will be highlighted.

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