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di accesso al futuro

PO FSE ABRUZZO  
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Progetto Speciale Multiasse "Sistema Sapere e Crescita"  
PO FSE Abruzzo 2007-2013 - Piano degli Interventi 2012-2013

## South Africa Underground Physics Laboratory - prospects and initiatives

### Radionuclides in South African environments - measurements, applications and prospects

**R. Newman (Stellenbosch University, Stellenbosch, South Africa)**

In this talk I start by giving an overview of research into environmental radioactivity in South Africa. I then focus on my own research focusing on the measurement of radioactivity in soils, sand, water and air using gamma-ray spectrometry, alpha spectrometry and electrets. The study contexts includes mining, agriculture, viticulture, and water resource management. In the last part of my talk I discuss past and envisaged measurements inside the Huguenot Tunnel near the town of Paarl (Western Cape, South Africa).

### Towards the South Africa Underground Physics Laboratory

**S. M. Wyngaardt (Stellenbosch University, Stellenbosch, South Africa)**

Over the past four years there has been discussion among South African physicists about the possibility of establishing a deep underground physics laboratory to study low level radiation phenomena. In my presentation I will discuss phase 1 of establishing activities in underground physics programmes in South Africa. In this first phase we intend to identify and set up a few small projects which will investigate the feasibility of the Huguenot Tunnel in the Du Toitskloof Mountains near Paarl (Western Cape, South Africa) as a possible site for the first South African Underground Physics Laboratory (SAUPL) facility. Such a study will help us to define future projects in low level radiation physics which be performed at the SAUPL facility. The research activities performed at the Huguenot underground tunnel facility will provide an opportunity to train students as well as provide training and skills development which will be required for the second phase of the SAUPL facility which is the establishment of a dedicated research facility in one of South Africa gold mines.

### iThemba LABS and the South African Underground Laboratory Initiative

**M. R. Nchodu (iThemba LABS, Faure, South Africa)**

iThemba LABS is a national research laboratory managed by the National Research Foundation with the funding from the South African Department of Science and Technology. The laboratory has a separated sector cyclotron that can accelerate protons up to 200 MeV and heavy charged particles. The nuclear physics department has as its main activities research and training in basic and applied nuclear physics. The nuclear physics research facilities include a K600 magnetic spectrometer, a gamma ray array consisting of 8 Clover type HPGe detectors with Compton suppression shields, and a neutron beam facility. iThemba LABS is formally linked to CERN and participates in the ALICE research program. iThemba LABS has a memorandum of agreement with the Universities of Stellenbosch, Western Cape and Cape Town and Stichting EARTH (Earth Antineutrino Tomography) to investigate the feasibility of developing a direction sensitive antineutrino detector. The presentation will highlight some of the research activities in the laboratory that are relevant to the development of the South African underground laboratory.

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LNGS - "E. MAJORANA" ROOM



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