**Press Release from SAIP** Tuesday, May 29, 2012

## The SKA and the South African Institute of Physics

The South African Institute of Physics welcomes the announcement that the Square Kilometer Array (SKA) project will go ahead with most of the telescopes based in South Africa and Africa.

The SKA has the capacity to address some of the most important and exciting major questions of astrophysics, which in fact have tremendous implications for a much wider area of physics. These questions relate to the nature of gravity, dark matter, dark energy, the physics of the early universe and the possibility of life elsewhere in the universe. There are overlaps with particle physics, materials science and high performance computing. We also see opportunities in more technical fields, such as signal processing, communications, detector development and imaging. Several sectors in engineering, such as electronics, systems engineering and radar are in fact already participating through the MeerKAT project. Advances in all these technology areas will spread the benefits of the SKA ultimately to diagnostic medicine, environmental observation, the Internet and many other areas.

The SKA will build on South Africa's already impressive multi-wavelength Astronomy capacity, where many modes of observation can be coupled to observe the same system at the same time from a very similar perspective. This will leverage enormously the insight that can be gained into new or not yet understood phenomena. This capacity increases the chance of Southern Africa being yet further developed with exciting new instruments of astronomical observation. The SAIP therefore supports the bid for the next generation of gamma ray telescope, the Cherenkov Telescope Array (CTA), to be placed in Namibia. The CTA is to the Namibian High Energy Stereoscopic System (HESS) telescope what the SKA is to the MeerKAT array. The SAIP is involved in a project to develop Gravitational Wave Astronomy in South Africa. It is not hard to imagine that Southern Africa will become the world's astronomical "Mecca".

The training opportunities of the SKA are enormous. We particularly welcome the impact this will have on stimulating the interest of young South Africans in Science, in building the culture of learning and in building the perception that Africa is serious about innovation and excellence. The SAIP encourages young learners to choose a career in Science and Technology.

The SAIP is committed to playing its part to making this project a success. This will be in several contexts. We have mentioned the growth of the field of Astronomy, and the development of many synergies within Physics and technology generally. The SAIP will also facilitate the spin-off benefits to other fields, such as medicine and information technology. We will play our part to make sure the manpower development and outreach opportunities are maximized. Finally, the SAIP will leverage the advent of the SKA and participate in developing Science throughout Africa, through its partnerships with sister societies in Africa and the African Physical Society.

We see the SKA as a game changer in the science and technology landscape. It is a coup for our science system of a similar magnitude to the Large Hadron Collider at CERN. The results at CERN have pointed to an increasingly important symbiosis between direct discovery of new physics by creation of exotic particles in the laboratory and the indirect discovery of new physics by observation of the astronomical footprints of those same particles. In this sense, the very recent science developments have enhanced the scientific significance of the SKA project. We get a bigger bang for our buck. The SKA therefore also deserves the title of "New Physics Discovery Machine". The SKA project is one of the excellent examples that indicate the fruitful working relationships between scientists, scientific organizations and the Department of Science and Technology, which has played a key role in the scientific renaissance of South Africa.

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