

Keynote Address: Does Accelerator Mass Spectrometry (still) have a place in an emerging economy?

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South Africa's science infrastructure, human capacity and budget spend must impact on wellbeing in the country. Extremely expensive science platforms, such as the Accelerator Mass Spectrometry (AMS) facility at iThemba LABS, provide a bottom-up facility for research with local benefits. In meeting the institutional mandate, the AMS facility operates in a partnership with the user base both in the provision of know-how to run analyses on science agendas set by the users, and in leading in-house research that accommodates academic partners and post-graduate student training. The AMS facility is the only one of its kind on the African continent, but despite a patent demand for an African AMS facility to serve the traditional heritage market, this can only be realised with investments in and personnel and infrastructure renewal dependent on top-down structures. AMS needs to be justified by the bottom-up contributions, but societal benefits of AMS seldom manifest in the particle physics domain. Instead, it is found in applied disciplines that make use of the systematics of rare element production, decay and distribution among different reservoirs. These include testing climate change forecasts, dating groundwater recharge, assessing global phenomenon such as magnetic field fluctuations over the last 50 000 years, and assessing the mechanisms of coastal erosion. The essence of the AMS program is to use particle physics for the benefit of the people of South Africa, and Africa, and this depends on attracting innovative young scientists into the field and supporting them within the iThemba LABS mandate.

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