Contribution ID: **91**   Type: **Oral**

Does Accelerator Mass Spectrometry have a place in an emerging economy?

Monday, 16 May 2022 10:00 (45 minutes)

South Africa's science infrastructure is required to respond to a mandate that specifies a number of outcomes, and one of the core tenets is that science must impact on wellbeing in the country. Extremely expensive science platforms, such as the recently commissioned Accelerator Mass Spectrometry (AMS) facility at iThemba LABS, must respond by facilitating research for users; by training the next generation of scientists; and by leading cutting edge research with a local benefit. The AMS facility is the only one of its kind on the African continent and will grow to serve not only the South African science community, but also the wider African community until it has a continental footprint. In meeting the mandate the AMS facility must operate in a partnership with the user base, both in the provision of know-how to run analyses on a science agenda set by the users, but also in leading in-house research that accommodates academic partners and facilitates post-graduate student participation. Many of the societal benefits of AMS are not to be found in the particle physics domain, but rather in the applied science that falls in to other disciplines. The basis of these applications is in the systematics of rare element production, decay and distribution among different reservoirs. Scientists at iThemba LABS are partnering with users who require traditional chronology-based applications of AMS, but they are also using the AMS facility across a wide range of novel applied domains. These include: testing climate change forecasts, dating groundwater recharge, assessing global phenomenon such as magnetic field fluctuations over the last 50 000 years. The essence of the program is to use particle physics for the benefit of the people of South Africa, and Africa.

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Session Classification: Accelerator Mass Spectrometry