

## Applications of Accelerator Mass Spectrometry in southern Africa

The AMS facility at iThemba LABS is the only one of its kind on the African continent. It operates with NRF support to achieve a threefold mandate: to provide a technology platform for users, to train future science leaders, and to do research. In meeting this mandate the AMS facility operates in a partnership with the user base 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. While the AMS facility is framed securely in the particle physics domain, the greatest impact is found in applied disciplines. The greatest demand is from the traditional heritage market, and the “recent archaeology” of southern Africa is almost entirely dependent on AMS radiocarbon dating to provide a chronological framework. Other important applications 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.

**Primary author:** WOODBORNE, Stephan

**Presenter:** WOODBORNE, Stephan

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