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Integrating synchrotron technology into the palaeosciences in South Africa

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While possibilities exist for using high resolution X-ray based technology (e.g., microCT) in South Africa, synchrotron technology offers a number of additional, crucial advantages to palaeoscientists that create unique opportunities for addressing scientific questions. Its non-destructive nature and high resolution imaging capability (e.g., submicron spatial resolutions) are especially important among these. Here, examples of successful partnerships between beam line scientists at the ESRF and palaeoscientists from South Africa are highlighted. These collaborations span investigations being performed on South African heritage objects that are hundreds of millions of years old up to relatively more recent times. Typically, fossil internal structure is targeted because it reveals otherwise unavailable evidence on organismal biological processes, growth trajectories, and structural details. Moreover, the intersection of synchrotron technology and palaeoscientific research is proving to be a rich area for developing new types of biological investigations.

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