

# What Can Zircon Tell Us? A Geochronological Study in Sri Lanka



**Dr. Samuel Wai-Pan Ng**

*Department of Earth Sciences,  
The University of Hong Kong*

Geology is a four-dimension science, of which time plays a significant role in the study. Absolute dating is essential for sequencing geological events, and to reconstruct the geological evolution of a particular place. Among all the radiometric dating methods, U-Pb zircon dating is the most widely used method for its high reliability as it relies on two independent chronometers, the  $^{238}\text{U}$ - $^{206}\text{Pb}$  and the  $^{235}\text{U}$ - $^{207}\text{Pb}$  systems, cross-checking with each other. These systems also have long half-life decay (ca 4.5 Ga for  $^{238}\text{U}$  and 704 Ma for  $^{235}\text{U}$ ), which makes them suitable for geological dating. Also, zircon is widely available in a great variety of lithologies, including felsic igneous rocks, clastic sedimentary rocks, metapelites, and metabasites. The development of automated secondary ion mass spectrometry (SIMS) and laser ablation system in inductively coupled plasma mass spectrometry (LA-ICP-MS) enable in-situ microanalysis on (part of the) mineral grain (zircon, in this case) with speed and convenience. Because of that, misinterpretation on zircon data is not uncommon. This talk will demonstrate the considerations of applying U-Pb zircon dating, the techniques of sample preparation, and the vast information hidden by zircon, using the examples in Sri Lanka.

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**Conference Room, 3/F,  
Mong Man Wai Building**



Enquires: 3943 9624 [essc@cuhk.edu.hk](mailto:essc@cuhk.edu.hk)