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## Petrogenesis of Malaysian Granitoids in the Southeast Asian Tin Belt

*Presented by Dr. Samuel Wai-Pan Ng*

Date: 25<sup>th</sup> May, 2016 (Wednesday)  
Time: 6:30 pm to 7:30 pm  
Venue: JL104, James Lee Building, The University of Hong Kong  
Seminar Fee: Free of charge  
Registration: No prior registration is required.  
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### Synopsis:

The Malaysian tin granites forming the backbone of the Thai-Malay Peninsula have been long recognized with two distinct granitic provinces:

1. Early Permian to Late Triassic Eastern Province with mainly “I-type” (Hbl)-Bt granites with associated Cu-Au deposits, with subordinate Bt granites hosting limited Sn-W deposits, and
2. Late Triassic Main Range Province with mainly “S-type” Bt granites with associated Sn-W deposits, and subordinate (Hbl)-Bt granites.

New geochemical data show that Chappell and White's (1974) I-S granite classification adopted in the existing model does not adequately distinguish the granites from one another as previously implied. Trace element geochemistry and Sr-Nd isotopic compositions show that the Malaysian tin granites in both provinces have transitional I-S characteristics. In addition, they inherited within-plate signature from Cambro-Ordovician Gondwana-related source rocks. Previous ages were obtained by whole rock Rb-Sr and biotite K-Ar geochronology in the 70s and 80s, dating methods that may not accurately represent the



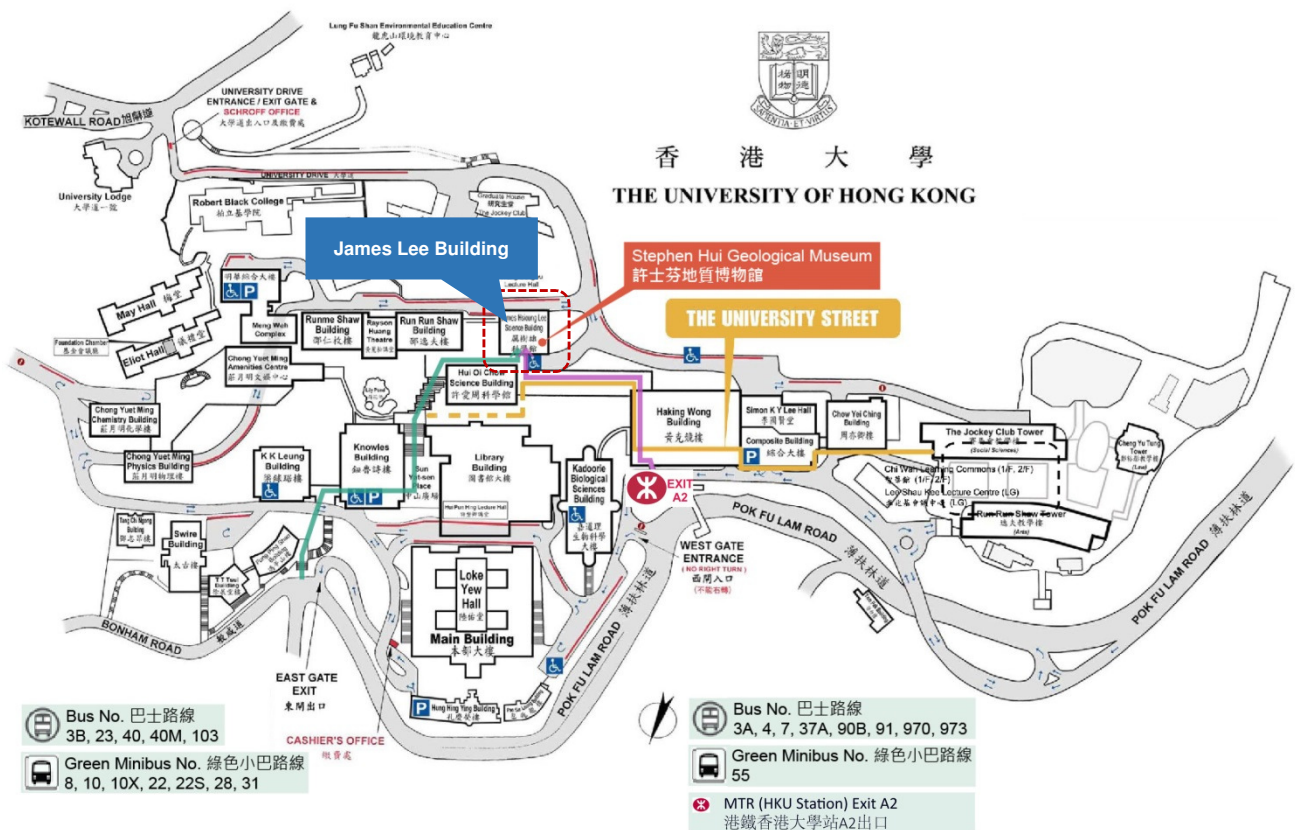
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crystallization age of granites. We re-sampled the entire Malaysian Peninsula and 40 samples were collected for high-precision U-Pb SIMS dating on extracted zircon grains in order to better constrain the magmatic and tectonic evolution of Southeast Asia. The crystallization ages of the Eastern Province granitoids have been constrained ranging from 220 to 290 Ma, while the Main Range (Western) Province granitoids have ages ranging from 200 to 230 Ma. A progressive westward younging trend is apparent across the Eastern Province, but becomes less obvious in the Main Range Province. Our model suggests two east dipping subduction zones. We suggest that subduction roll-back along the Bentong-Raub suture might account for the westward younging trend, in the Eastern province. A second Late Triassic east-dipping subduction zone beneath western Malaysia is proposed in order to explain the “I-type” components to the Main Range Province granitoids.

Chappell, B.W., and White, A.J.R., 1974, Two contrasting granite types: *Pacific Geology*, v. 8, p. 173-174.

**About the Speaker:**

Dr. Samuel Wai-Pan Ng is a Postdoctoral Fellow in the Department of Earth Sciences of The University of Hong Kong (HKU). His research interest is magmatic processes in the subduction and collision zones. Recently, he works on projects in Sri Lanka and Indonesia. Samuel received his BSc and MPhil degrees in Earth Sciences at HKU with his research focused on the obduction of the Akamas ophiolitic massif in Cyprus. Before rejoining HKU in 2014, he earned his DPhil degree from St. Anne’s College, University of Oxford with his thesis on the petrogenesis of Malaysian tin granites.



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