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## Impact of weathering on rock material strengths of granite

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Geomechanical strength of rock materials plays a significant role in influencing the stability of both cut rock slopes and underground openings. The characteristics of mechanical strength are subjected to both material strength and condition of weathering. This paper presents the results of a systematic research to quantify the mechanical characteristics of fresh as well as slightly weathered granites of Peninsular Malaysia. A total of 298 geomechanical strength tests were conducted for fresh as well as slightly weathered rock material employing the uniaxial compressive strength test and Brazilian tensile strength test. Statistical analysis of the results at 95 percent confidence level exhibited that the means of compressive strength for fresh and slightly weathered granites were  $113.6 \pm 7.0$  MPa and  $68.9 \pm 3.6$  MPa. The respective mean values of tensile strength for fresh and slightly weathered granites were  $8.8 \pm 0.4$  MPa and  $5.3 \pm 0.1$  MPa. The results revealed that the geomechanical strengths of fresh rock material deteriorated by approximately 1/3 upon weathering of rock material reduce to slightly weathered rock materials. The results also exhibited that the Brazilian tensile strength for fresh and slightly weathered granites is approximately 1/13 of uniaxial compressive strength.

### Biography

Goh Thian Lai has completed his Ph.D. at the age of 41 years from National University of Malaysia. He is the editor of *Sains Malaysiana* journal. He has published more than 10 papers in reputed journals.

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