

不同剪切速率下岩石节理的强度特性研究

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摘要 不同剪切速率作用下岩石节理强度特性是研究地震荷载作用下岩体结构响应和安全的基本参数, 通过RMT-150C电伺服试验机, 利用人工浇铸的表面为锯齿状的混凝土岩石节理试样, 研究不同剪切速率下各种岩石节理起伏角度岩石节理的强度特征。试验结果发现: (1) 岩石节理面的峰值剪切强度随着剪切速率的增大而减小, 减小幅度随着剪切速率的增大变小; (2) 岩石节理面的峰值剪切强度随着起伏角度的增大而增大; (3) 岩石节理面的峰值剪切强度随着法向应力的增大而增大, 基本成线性关系。最后, 基于试验的结果提出考虑不同剪切速率的岩石节理峰值强度模型。

关键词 [岩石力学](#); [岩石节理](#); [剪切速率](#); [起伏角度](#); [峰值剪切强度](#)

分类号

STUDY ON STRENGTH BEHAVIORS OF ROCK JOINTS UNDER DIFFERENT SHEARING DEFORMATION VELOCITIES

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Abstract

Strength of rock joints under different shear deformation velocities is the basic information to assess the response and safety of rock structures under earthquake. By using the RMT-150C servo-test system, artificial concrete joint samples with hammered surfaces have been employed to study the strength of rock joints under different shearing velocities. Based on the experimental results, it can be found that the peak shear strength decreases with the increase of shear deformation velocity; and that the decreasing rates decrease with the increment of shearing deformation velocity. It is also indicated that the peak shear strength of rock joints clearly increases with the increase of normal stress and undulation angles at different shear deformation velocities. Based on the experimental results, a model to describe the peak strength of rock joints with shear deformation velocity and undulation angle is presented.

Key words [rock mechanics](#); [rock joints](#); [shearing deformation velocity](#); [undulation angle](#); [peak shear strength](#)

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