

## عنوان مقاله:

Stability analysis of block-flexural toppling of rock blocks with round edges

## محل انتشار:

مجله معدن و محیط زیست, دوره 11, شماره 4 (سال: 1399)

تعداد صفحات اصل مقاله: 13

## نویسنده:

H. Sarfaraz - School of Mining Engineering, College of Engineering, University of Tehran, Tehran, Iran

## خلاصه مقاله:

One of the most conventional toppling instabilities is the block-flexural toppling failure that occurs in civil and mining engineering projects. In this kind of failure, some rock columns are broken due to tensile bending stresses, and the others are overturned due to their weights, and finally, all of the blocks topple together. A specific feature of spheroidal weathering is the rounding of the rock column edges. In the mode of flexural toppling failure, rounding of edges happens only at the upper corners of the block but in the block toppling failure mode, due to the presence of cross-joints at the base of the block, rounding of edges also occurs at the base of the block. In this work, a theoretical model is offered to block-flexural toppling failure regarding the erosion phenomenon. The suggested methodology is evaluated through a typical example and a case study. The results of this research work illustrate that in the stable slopes with rectangular prismatic blocks, where the safety factor value is close to one, the slope is subjected to failure due to erosion. Also the results obtained show that the recommended approach is conservative in analyzing the block-flexural toppling failure, and this approach can be applied to evaluate this failure.

## کلمات کلیدی:

Rock Slope Stability, Spheroidal Weathering, Round Edges, Theoretical Solution

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1200424>

