

坡地排水渠道消能墩塊配置之研究

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摘 要 本研究針對坡地渠道消能墩塊的形狀和排列方式，進行渠槽試驗，量測渠道水位變化、估算渠流能量損失，分析墩塊最佳和最適的形狀和配置方案。試驗結果顯示，渠道消能墩塊之消能效率分別為長方形>菱形>正方形>球形>圓柱形，以 2:2 (橫向與縱向間距比) 長方形墩塊配置為最佳之排列方式，以 3:2 長方形墩塊配置為最適之排列方式，且墩塊配置以縱向間距對消能效率之影響大於橫向間距。本研究結果有助於坡地排水消能設施效能的提升，可供排水工程規劃與設計的參考。

關鍵詞：排水工程、消能墩塊、渠槽試驗。

A Study on the Arrangement of Energy Dissipation Block on the Hillside Drainage Channel

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ABSTRACT This research focuses on the shape and arrangement of energy dissipation blocks in a hillside channel. We first developed a channel test, measured the change of channel water level and estimated the energy loss of channel flow. Then, we analyzed the best and optimum schemes for the shape and arrangement of blocks. The results show that the energy dissipation efficiency of blocks in a channel follows the order of rectangle > rhombus > square > sphere > cylinder. The best arrangement is 2:2 (the distance ratio of lateral to vertical) and the optimum arrangement is 3:2 for a rectangular block arrangement, respectively. In addition, with respect to the arrangement of blocks, vertical distance makes a larger influence on energy dissipation efficiency than lateral distance does. The results in this research are helpful in improving the efficiency of energy dissipation facilities for a hillside drainage; furthermore, it can be used as a reference in planning and designing the drainage.

Key Words: drainage engineering, energy dissipation block, channel test.

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