

# SNS主动防护条件下边坡绿化及稳定性探讨

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摘要 主动SNS为一种开放式的防护方法, 其安装方便快捷, 施工简单, 防护效果好, 已经在国内多处水电、交通、矿山等领域得到广泛应用。主动SNS也给植被防护提供了很大的空间, 但由于条件所限, 国内将主动SNS与植被恢复相结合的实例并不多, 相关方面的研究也较少。简要地介绍了现阶段边坡绿化的主要方法, 讨论主动SNS与植被恢复相结合的方法。此外, 还讨论主动SNS与植被共同作用下边坡的稳定性, 并提出一种简化的计算模型用以验算边坡安全系数。最后, 用一个工程实例对所提出的模型进行验算。

关键词 [边坡工程; 柔性防护系统; 边坡稳定性; 绿化; 植被护坡](#)

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## DISCUSSION ON VEGETATION METHODS AND STABILITY OF SLOPES REINFORCED BY SNS ACTIVE PROTECTION SYSTEM

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### Abstract

SNS(safety netting system) active protection is an open system to reinforce slopes. Considering its merits—easy to install, high efficiency, low cost and artistic effect on slopes, it has been widely used in many fields of domestic industries, such as hydropower station, civil transportation and mining engineering. Though the feasibility of combining herbage protection with the SNS active system does exist, few practical engineering using this method were put into effect. The study on this issue is also scarce. In this paper, the authors summarize the conventional ways to afforest slopes, discuss the feasibility of combining SNS active system with slope vegetation, and suggest that three vegetation ways can be used to the slopes reinforced by the SNS active system. The authors also advise proper amendment of these vegetation ways. A new method of evaluating the stability of the slope protected by the flexible active protection system is put forward. The reinforcing effect of slope protection with herbage at shallow layer is demonstrated; a simplified geometrical model to simulate the situation of the slope is proposed, from which formulas used to calculate safety factor can be deduced; and a practical engineering slope is used to testify the formulas. The results show that the formulas are applicable. The following conclusions can be drawn as follows: (1) the SNS active protection can successfully reinforce slopes; (2) the SNS-herbage protection overcomes the inconvenience of traditional ways to reinforce slopes, improves the

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effect of the vegetation, and becomes a developing method with ecological and social benefits. So, the SNS combined with herbage protection is recommended.

**Key words** [slope engineering](#); [flexible protection system](#); [slope stability](#); [vegetation](#); [herbage protection](#)

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