# A Scheme Cooperating with Cryptography to Enhance Security in Satellite Communications

**Authors :** Chieh-Fu Chang, Wan-Hsin Hsieh

**Abstract :** We have proposed a novel scheme— iterative word-extension (IWE) to enhance the cliff effect of Reed-Solomon codes regarding the error performance at a specific $Eb/N0$. The scheme can be readily extended to block codes and the important properties of IWE are further investigated here. In order to select proper block codes specifying the desired cliff $Eb/N0$, the associated features of IWE are explored. These properties and features grant IWE ability to enhance security regarding the received $Eb/N0$ in physical layer so that IWE scheme can cooperate with the traditional presentation layer approach — cryptography, to meet the secure requirements in diverse applications. The features and feasibility of IWE scheme in satellite communication are finally discussed.

**Keywords :** security, IWE, cliff effect, space communications
**Conference Title :** ICSSC 2015 : International Conference on Satellite and Space Communications
**Conference Location :** London, United Kingdom
**Conference Dates :** June 28-29, 2015