Secure Source-Relay Link Based Threshold DF Relaying Scheme

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Abstract

In this work, a dual-hop cooperative system, in which there are a Source-Destination (S-D) pair, a relay node (R) and an eavesdropper (E), which attempts to eavesdrop the confidential message sent by S and forwarded by R, is considered. In order to enhance the system performance and save the system resource, we propose an $S-R$ link based threshold decode-and-forward (DF) relaying scheme for R to decide whether to aid S-D pair's information transmission or not, other than the traditional DF relaying scheme. The secrecy outage performance of the considered system is investigated and the closed-form analytical expression for secrecy outage probability is derived and verified via Monte-Carlo simulations.

Keywords:

Decode-and-forward, dual-hop, Rayleigh fading, secrecy outage.