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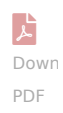
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Abstract:

Traditional wireless security schemes neglect the unique properties of the wireless channel. Exploiting physical layer can significantly enhance the conventional security schemes. However, the robustness and bit mismatch rate of current physical-layer-based schemes still need to be improved. Conventional two thresholds quantization is not stable when inserting or removing intermediate objects between legitimate users, and the consistency of the generated secret key is low due to small fluctuations. In this article, we propose a differential secret key generation scheme based on weighted exponential moving average (WEMA) method. Differential quantization is utilized to enhance the robustness of the secret key generation scheme. Furthermore, we prove that WEMA method can effectively smooth out short-term fluctuations and decreasing the bit mismatch rate. Finally, we present a numerical simulation to demonstrate the feasibility of our proposal.

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