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# EMPIRICAL ANALYSIS AND SURVEY FOR AUTHENTICATION SCHEME USING BY CRYPTOSYSTEM

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## ABSTRACT

*In recent years, establishment of secure communication channel over a public network has been considered as one of the most significant challenge in network applications. Conventionally, asymmetric cryptography is commonly utilized technique to produce a key between two users and to transfer it by means of an unsafemedium. Nonetheless, approaches utilized this mechanism, such as Rivest–Shamir–Adleman (RSA) technique and Diffie-Hellmankey exchange (DH) algorithm have faced lot of issues and there is a necessity to develop efficient approach to generate key that can provide high security. DH is a basic key exchange technique that employs asymmetric keys to exchange the secret key distributed by only two parties over unencrypted networks. However, limitations faced by DH algorithm can be solved by introducing Neural Key Exchange (NKE) technique, which is purely dependent upon neural network and it is somewhat same as that of DH algorithm. The only difference is that it is solely dependent on mutual learning or mutual synchronization in the artificial neural network (ANN)rather than discrete logarithmic constraints. In this article, 25 papers are taken into an accountwith respect todiverse secure authentication mechanism with neural key based on blockchain techniques, which are effectively used for effective secure authentication over networks. The categorization methods are divided into five methods, such as deep-learning-based method, optimization, chaos, mutual learning, and cryptography-based methods and constraints and challenges faced by classical approaches are revealed in this survey. In addition, the evaluation is performed depending upon research using classification techniques, tool used, publication year, and evaluation metrics.*

**KEYWORDS:** *Authentication; Blockchain; Key exchange protocol; Neural Key Exchange (NKE), Neural Networks (NNs)*