

**Provably secure and lightweight identity-based authenticated data sharing protocol for cyber-physical cloud environment**

**Abstract:**

Secure and efficient file storage and sharing via authenticated physical devices remain challenging to achieve in a cyber-physical cloud environment, particularly due to the diversity of devices used to access the services and data. Thus in this paper, we present a lightweight identity-based authenticated data sharing protocol to provide secure data sharing among geographically dispersed physical devices and clients. The proposed protocol is demonstrated to resist chosen-ciphertext attack (CCA) under the hardness assumption of decisional-Strong Diffie-Hellman (SDH) problem. We also evaluate the performance of the proposed protocol with existing data sharing protocols in terms of computational overhead, communication overhead, and response time.