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A Secure and Robust Anonymous Three-Factor Remote User Authentication Scheme For Multi-Server Environment Using ECC

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Highlights

- We propose a secure anonymous three-factor based remote user authentication scheme for multi-server environment using ECC.
- We show that the proposed scheme is accurate and provides mutual authentication and session key agreement securely on the basis of BAN logic.
- Its formal security analysis, using Random Oracle Model, shows that an attacker cannot retrieve the backbone parameters such as user identity, password, secret keys, and session key.
- Using informal security analysis, we prove that our scheme defends against various security pitfalls.
- We provide a comparative performance of our scheme along with relevant existing authentication schemes to show that it provides various security attributes with efficient complexity.

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