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## Special Issue on Advanced Blockchain Technology and Applications

### Call for Papers

Blockchain enables a distributed and tamper-resistant ledger platform which allows transactions, and any other digital data to be securely stored and verified without need of a centralized authority. In the recent years, a large number of Blockchain-based applications have been presented by both researchers and industry practitioners with varying design architecture, functional requirements and security guarantees. However, several key properties, such as distributed security, privacy, scalability, degree of decentralization etc., are under evaluated from the perspective of public blockchain architectures.

This special issue aims to explore the use of formal methods, empirical analysis, and risk modeling techniques to develop secure yet resilient blockchain applications and protocols. This would also facilitate multidisciplinary collaboration among practitioners and researchers working in the field of blockchain design (e.g., the underpinning cryptographic protocols), distributed systems, cryptography (including cryptanalysis), computer security, and risk management etc. Papers may present advances in the blockchain theory, applications, design and implementation of novel distributed protocols, analysis, verification, or empirical evaluation and measurement of existing blockchain systems. Papers that shed new light on past or informally known results by means of sound formal theory or through empirical analysis will also be welcomed.

Suggested contribution topics include (but are not limited to):

- Blockchain based open-source tools
- Blockchain for securing cyber infrastructure and IoT networks
- Blockchain-based authentication, authorization and accounting mechanisms
- Consensus protocols for blockchains
- Decentralized applications (exchanges, mining pools, trading platforms, etc.)
- Anonymity and privacy issues in blockchains
- Using blockchain in digital forensics and cyber-threat hunting, cyber-threat intelligence and cyber threat analytics
- Forensics readiness of blockchain technologies
- Formal verification of blockchain protocols and smart contracts
- Fraud detection and financial crime prevention
- Incentive mechanisms for blockchains
- Legal, ethical and societal aspects of (decentralized) cryptocurrency
- Off-chain payment channels



- Permissioned (e.g. Hyperledger) and permissionless (e.g. Bitcoin) blockchains
- Privacy and anonymity-enhancing technologies
- Scalability and scalable services for blockchain systems
- Scalability issues and solutions for blockchain
- Security of blockchains
- Sidechain technologies
- Simple payment verification modes and lightweight blockchain clients
- Smart contract programming languages

Authors should read over the journal's [For Authors](#) carefully before submission. Prospective authors should submit an electronic copy of their complete manuscript through the journal's [Paper Submission System](#).

Please kindly specify the “**Special Issue**” under your manuscript title. The research field “**Special Issue – Advanced Blockchain Technology and Applications**” should be selected during your submission.

Special Issue timetable:

Submission Deadline	September 30th, 2021
Publication Date	November 2021

**Guest Editor:**

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