



**Rethinking Digital Ownership:  
A Cryptographic Inquiry into NFT Architectures**

**By**  
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**Date : 20 March 2026 (Friday)**

**Time : 3:00 pm – 4:00 pm**

**Venue : Rm 801, Ho Sin Hang Engineering Building, CUHK**

*Abstract*

This presentation examines the potential applications and inherent limitations of Non-Fungible Tokens (NFTs), which serve as blockchain-based digital tokens that attest to the ownership and uniqueness of non-interchangeable digital assets, including artworks, music, and collectible items. As NFTs have emerged as a promising technological foundation for novel digital marketplaces and business models, their technical characteristics warrant rigorous analysis. In contrast, digital tokens representing interchangeable assets—such as cryptocurrencies and security tokens—are classified as Fungible Tokens (FTs).

The talk focuses on fundamental technical challenges surrounding NFTs, particularly with respect to trust architectures and security guarantees from a cryptographic standpoint. Drawing on over two decades of research on e-provenance systems predating the advent of blockchain, the speaker provides a comparative assessment that elucidates what aspects of NFTs are genuinely innovative, and which issues remain consistent with longstanding challenges in digital provenance technologies.

*Biography*

Dr. Kouichi Sakurai is a Full Professor in the Department of Informatics at Kyushu University. He directs the Laboratory for Information Technology and Multimedia Security and holds concurrent appointments with the university's Cybersecurity Center and the Center for Quantum Computing Systems. His recent research interests include AI security in addition to cryptography and cybersecurity. Dr. Sakurai has advanced international and industry-academia-government collaboration in information security, including NICT-supported research among Japan, China, and Korea, and the first MoU between Japan and the Cryptology Research Society of India (CRSI). He was also affiliated with the Advanced Telecommunications Research Institute International (ATR), where he contributed to NEDO-SIP projects on supply-chain security. He has published over 500 academic papers [ <https://dblp.org/pid/16/3865.html> ].

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