

Title : 斯格明子賽道記憶體管理挑戰與解決方案 (The Challenges and Solutions of Skyrmion Racetrack Memory)

Date : 2023-11-20 2:00~4:00 pm

Location : 銘珠講堂

Speaker : 謝昀珊博士 / 中央研究院資訊科學所

Hosted by : 梁郁珮 助理教授

Abstract :

Skyrmion racetrack memory, with its remarkable access performance and high storage density, faces the challenge of balancing access speed, storage capacity, and data reliability. This presentation explores the working principles of this emerging non-volatile memory technology, highlighting issues like position errors and data representation problems that significantly affect data reliability.

While excellent error correction codes exist, their time-consuming encoding and decoding processes may not meet the nanosecond-level access latency demands of Skyrmion racetrack memory. To address this, we propose a granularity-driven management scheme that adaptively selects data encoding, layout, and indexing schemes Based on data granularity. This aims to eliminate errors while optimizing access performance and space utilization. We also examine port selection to minimize data access shift overheads. Our analytical and experimental studies demonstrate promising results, showcasing the potential of this approach to enhance Skyrmion racetrack memory

歡迎蒞臨聽講