

MATHEMATICS COLLOQUIUM SERIES

TOPIC:
SPECTRAL THEORY AND QUANTUM WALKS

DATE
21st October 2025 (Tuesday)

TIME
10.00 – 11.30 AM

VENUE
Conference Room, PPSM

Abstract: Quantum walks are a quantum mechanical analogue of classical random walks. We discuss techniques of understanding quantum walks on the integers using the spectral theory of unitary operators. In particular, we introduce a quantum walk model that is a unitary analogue of the almost Mathieu operator, which demonstrates fractal spectrum. We also demonstrate a quantum walk model that has a mobility edge: that is, a transition from localization to absolutely continuous spectrum by varying the spectral parameter.



SPEAKER
Prof Darren Ong Chung Lee

Xiamen University Malaysia

Who should attend?
Students, Researchers,
Academic Staff, and
especially Postgraduate
Research Students!



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Math@USM



dean_mat@usm.my



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+604 653 3284