SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
Website: https://cde.nus.edu.sg/ece

Area: Microwave & Radio Frequency (MWRF)

Host: Prof Qiu Chengwei

TOPIC	:	**Van der Waals Polaritonic Crystals**
SPEAKER	:	**Mr Cai Qizhe** **Graduate Student, ECE Dept, NUS**
DATE	:	**Wednesday, 17 June 2026**
TIME	:	**2:00PM-2:30PM**
VENUE	:	**Join Zoom Meeting** **https://nus-sg.zoom.us/j/83245521656?pwd=vdG3yfigltSuBnU5NvgC7vH7q6B2w3.1** **Meeting ID: 832 4552 1656** **Passcode: 956361**

ABSTRACT

Polaritons are hybrid quasiparticles, formed through the strong coupling between elementary excitations and photons. Although recent advances have revealed a series of unusual polaritonic phenomena, the manipulation of these hybrid quasiparticles remains challenging. In particular, the matter constituent endows polaritons with intrinsic characteristics dictated by the underlying material platform, such as lattice symmetry, electronic structure, and many-body interactions. In this seminar, we will introduce a new platform for polariton engineering by integrating van der Waals slabs with metasurfaces. Unlike conventional pure material platforms, this platform provides a versatile method to tailor the local and nonlocal electromagnetic environment, enabling unprecedented control over polaritonic propagation. This platform enables the manipulation of light at the nanoscale and holds great promise for high-density integrated photonic circuits, opening new opportunities for artificial intelligence acceleration.

BIOGRAPHY

Mr. Cai Qizhe is currently pursuing Ph. D. degree in the Department of Electrical and Computer Engineering at NUS under the supervision of Prof. Qiu Cheng Wei. His current research focuses on van der Waals polaritons and metasurface.

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