

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
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Area: Microelectronic Technologies & Devices (MTD)

Host: Assoc Prof Aaron James Danner

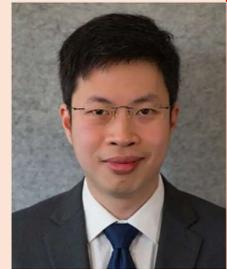
TOPIC	:	Terahertz Technology: from Devices and Systems towards Sensing and Communications
SPEAKER	:	Prof Withawat Withayachumnankul Professor, School of Electrical & Electronic Engineering, The University of Adelaide
DATE	:	Tuesday, 10 March 2026
TIME	:	11:00AM-12:00PM
VENUE	:	E7-03-06

ABSTRACT

Recent advancement in terahertz technology has spurred an ongoing paradigm shift in the field from physics to engineering. Consequently, the field inches closer towards practical applications in sensing and communications. We can envisage deployment of terahertz systems for in-situ non-destructive evaluation, stand-off security sensing, and 6G+ communications with terabit-per-second data rates. Here in this talk, I will provide an overview of the latest research activities in my group, spanning broadly from devices and systems towards sensing and communications. We will delve into metasurfaces that break the limitations of natural materials in this frequency range. We will explore unorthodox antennas and our own proprietary integrated platform, specifically designed for terahertz waves. We will understand how terahertz waves can offer new sensing capabilities in security, defence, food, and agriculture. Our recent activities in communications over 300 GHz carriers will be discussed. Owing to the unique location of terahertz waves on the electromagnetic spectrum, techniques and tools from both the microwave and photonic domains have been adapted and enhanced by novel materials, fabrication, and design approaches. A forward-looking dimension will accompany all these research activities.

BIOGRAPHY

Withawat Withayachumnankul earned his bachelor's and master's degrees in electronic engineering from King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand, in 2001 and 2003, respectively. He later obtained a doctorate degree in electrical engineering from the University of Adelaide, Australia, in 2010. Following the completion of his doctoral study, Dr. Withayachumnankul was honoured with a prestigious 3-year Australian Research Council (ARC) Postdoctoral Fellowship in 2010. In 2015, he further expanded his global research experience as a Research Fellow of the Japan Society for the Promotion of Science (JSPS) at Tokyo Institute of Technology.



Dr. Withawat Withayachumnankul serves as a Professor at the University of Adelaide and is an Australian Research Council (ARC) Future Fellow. He is the Founding Leader of the Terahertz Engineering Laboratory, where he currently mentors around 12 PhD students and 3 postdoctoral researchers. Since 2017, he has also been a Visiting Researcher at Osaka University. Demonstrating strong service to the academic community, Dr. Withayachumnankul served on the ARC College of Experts from 2023 to 2025. He also holds the position of Track Editor for the IEEE Transactions on Terahertz Science and Technology. His scholarly output includes more than 130 journal publications. In recent years, he has led four ARC Discovery Projects, attracting over AUD 3.5 million in competitive research funding. His research spans terahertz integration, metasurfaces, antennas, radar, communications, and non-destructive evaluation. Among his recognitions, he received the IRMMW THz Society Young Scientist Award in 2020 and is an IEEE Fellow (Class of 2026) as well as an Optica Fellow (Class of 2024).

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