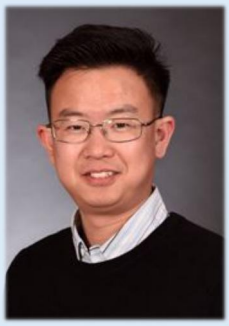
IEEE AP-S Distinguished Lecture Series in Singapore

Date: November 2-4, 2026

Venue: 5th Singapore Workshop on Antennas (SWA2026, Singapore), Nanyang Technological University

Prof. Bing ZHANG

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Prof. Bing Zhang, IEEE Antennas and Propagation Society (AP-S) Distinguished Lecturer (DL), attended the SWA2026 conference, which is supported by the IEEE AP-S DL program and visited Nanyang Technological University.

This November, the IEEE AP-S DL Workshop program provided a unique platform for engaging the vibrant electromagnetic research community in Singapore. Organized and coordinated by Prof. Yueping Zhang (Nanyang Technological University, Singapore), the invited IEEE AP-S DL, Prof. Bing Zhang from Sichuan University, attended the SWA2026 conference and delivered an IEEE AP-S DL talk. After the conference, he visited Nanyang Technological University. Before this event, announcements were widely disseminated through the official IEEE Singapore Section communication channels, social media (e.g., LinkedIn), and international research networks, ensuring a broad reach across Singapore's electromagnetics community. Given the collaborative nature of these research hubs, the lectures were organized in a hybrid format, allowing for both on-site attendance and virtual participation among regional and international IEEE members.

Prof. Zhang's DL talk was entitled "Exploring the Potential of 3D Printing Technologies for Antenna Design and Fabrication - Challenges and Opportunities." In the first part of his talk, he shared thoughts on "novelty" from the aspects of theories, applications, materials, and processes. Then he introduced the chronicle of 3D printing technology, which was invented in 1980. In terms of materials, the 3D printing technology can be categorized as dielectric and metallic 3D printing. Prof. Zhang briefed on the advantages and disadvantages of dielectric and metallic 3D printing technologies, especially for microwave device fabrication. He introduced examples of dielectric and metallic 3D printed microwave devices, showing that both categories are facing problems of surface roughness (SR) and dimensional tolerance (DT). The consequence of not well-controlled SR gives rise to increased surface impedance, and hence, the insertion loss of the microwave device increases. The deteriorated DT leads to a shifted functional frequency of the microwave device. Methods to solve the two problems are introduced, which manage to put SR and DT under desirable control. Then Prof. Zhang introduces a series of 3D printed microwave devices carried out in his group, including an ME dipole array for airborne application which has the self-cooling function taking the advantage of 3D printing technology to fabrication complex structures, a dielectric and metallic hybrid 3D printed lens antenna with tapered feeder aperture for water body monitoring, a hybrid PCB and 3D printing fabricated OAM metalens which features an extra degree of freedom of phase modulation by 3D printing, a 3D printed vehicle's headlight with scanning beam for C-V2X application which

ingeniously integrated two antennas in the vehicle's headlight, a metallic 3D printed broadband antenna designed by the dimension-expanded superformula which covers the 800 MHz – 18 GHz spectrum with only a 9.5-gram antenna weight, and a metallic 3D printed coaxial filter designed by PCMT with gradient profile. The lectures concluded with an active Q&A and discussion with SWA2026 conference attendees.

In summary, Professor Zhang's DL visit to Singapore was highly fruitful, fostering a high-level scientific dialogue between the IEEE AP-S and the broader electromagnetic research community.



Picture : A collection of photos from Prof. Zhang's visit in Singapore.