

Magnetoelectric Dipole Antennas

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Abstract— The magnetoelectric (ME) dipole antenna is a new class of wideband radiating element that was significantly developed over the past two decades globally. The presenter is renowned for his pioneering work on antenna designs and has continuously developed the ME dipoles since 2006. The antenna has been applied for mobile communications, global positioning, sensing, radars, medical imaging and IoT, demonstrating the versatility and interdisciplinary of the antenna. Recent new development trends of the antenna for designing reconfigurable wideband reflectarrays, transmitarrays and metasurfaces operating at millimeter-wave and terahertz frequencies will be presented.

Kwai Man Luk is the Senior Vice-President of the Hong Kong Academy of Engineering and a Chair Professor of Electronic Engineering at City University of Hong Kong. His major interest is in conducting antenna research and education and is currently the project leader of a large Area-of-Excellence Project entitled: “Advanced Antenna Technology for a Smart World”. He is the author of the monograph entitled: “Magnetoelectric Dipole Antennas” by Cambridge University Press. He is a Deputy Editor-in-Chief of PIERS journals and the Chair of the Fellow Committee of the EM Academy. He is a Life Fellow of the IEEE, and an elected Fellow of the Hong Kong Academy of Engineering, Royal Academy of Engineering, and the EM Academy. He won many accolades, including the 2017 IEEE APS John Kraus Antenna Award, and the 2025 IEEE APS Chen-To Tai Distinguished Educator Award.

