ENGINEERS AUSTRALIA

Earn CPD hours

Joints Institution Lecture Series

Antenna Beam Steering and Cubesat Spacecraft assisting with Global Internet Connectivity

Hosted by: EA, IEEE and IET

Joint Institution Lecture Series

Event details

High-gain Antenna Beam Steering Using Near-Field Phase Transformation

The presentation is on the recently demonstrated antenna beam-steering technology, which is realised by developing a novel near-field phase transformation methodology. The beam-steering technology is extremely efficient, compact and truly planar – three most desired features, which are not found together in any of the existing beam-steering antenna technologies. The new beam-steering antenna systems have a simple configuration, comprising of a planar base antenna and a pair of metasurface plates placed above and very close to the antenna, and can be produced at much lower cost.

One application of this technology is providing internet connectivity through low-cost low-earth-orbit (LEO) satellite constellations to billions of people who do not have regular connectivity at present. Potential applications of this technology are not limited to global internet connectivity. Compact beam-steering antennas in low-cost ground terminals can enable new scientific research experiments in CubeSat spacecraft that are not possible now. Such an antenna is pivotal for portable and rapidly deployable active denial systems for detecting and neutralising improvised threats against a defence or a civilian installation, and wirelessly feeding “small cells” in next generation (5G) mobile communication systems.

About the Speaker

Muhammad Afzal

Afzal is working as a research associate in Centre for Collaboration in Electromagnetics and Antenna Engineering (C4CELANE) in Engineering Department at Macquarie University. He has recently completed PhD in electronics engineering under supervision of Prof. Karu Esselle. His PhD thesis was on the demonstration of beam steering using near-field phase transformations. His research interests include electromagnetic band gap or Fabry-Perot resonator antennas, high-gain planar metasurface based antennas, radial line slot antennas, phased arrays, free-standing phase-shifting structures, metasurfaces, frequency selective surfaces, near-field phase transformation, and far-field pattern synthesis using near-field phase transformation.

VENUE

Harricks Auditorium
8 Thomas Street
Chatswood NSW 2068

DATE & TIME

Thursday 24 August 2017
5.30 pm for a 6.00 pm start

Light refreshments will be provided prior to the presentation.
Sponsored by

IET The Institution of Engineering and Technology

IEEE

TICKETS (incl. GST)

EA Members & Students: Free
IEEE & IET Members: Free
ASDE Members: Free
Non-members: $30

REGISTER NOW

engineersaustralia.org.au