

**Duration: 13:50 - 17:50**

**Room: Seoul**

**SS-01**

## **Multibeam Antennas and Beamforming Networks**

### **Organisers:**

Piero Angeletti, European Space Agency, The Netherlands

Giovanni Toso, European Space Agency, The Netherlands

### **Abstract**

Multi-Beam Antennas (MBAs) find application in several fields including wireless and satellite communications, RADARs for electronic surveillance and remote sensing, science (e.g. radio telescopes), RF navigation systems, etc.

Beam-Forming Networks (BFNs) play an essential role in any antenna system relying on a set of radiating elements to generate a beam. Depending mainly on the antenna mission (i.e. operational frequency, pattern requirements, transmitting and/or receiving functionality, number of beams to be generated, etc.) different MBA architectures may be selected: from antenna systems completely based on independent feeds illuminating a number of reflectors, to hybrid systems based on both arrays and reflectors, from phased arrays to lens antennas.

The trade-off on the antenna solution largely involves the BFN interconnectivity and flexibility requirements, with a wide range of applicable BFN architectures with different complexity and performance.

The objective of the course is to present design principles and state-of-the-art in MBAs and BFNs.

### ***Programme***

#### ***13:50 - 14:40 Fundamentals of Multibeam Antennas***

Piero Angeletti, European Space Agency, The Netherlands

#### ***14:40 - 15:30 Multibeam Antenna Architectures - Part 1***

Giovanni Toso, European Space Agency, The Netherlands

#### ***15:30 - 16:10 Break***

#### ***16:10 - 16:50 Multibeam Antenna Architectures - Part 2***

Giovanni Toso, European Space Agency, The Netherlands

#### ***16:50 - 17:30 Beamforming Networks***

Piero Angeletti, European Space Agency, The Netherlands

#### ***17:30 - 17:50 Applications of Multibeam Antennas***

Piero Angeletti, European Space Agency, The Netherlands