

About us

The **Communications Engineering Group** covers a broad range of research including applications of microwave technology to communications and sensor systems, novel aspects of network design and optical communications. The group has a long tradition of excellence in electromagnetics and continues to exploit this with a combination of fundamental and applied research.

Researched topics range from antennas, through microwave circuits, radiowave propagation, optics, networking and radar, to communications signal processing. Research funding comes from the EU, research councils, the MOD and industry.

The group consists of 5 academic staff, 12 research staff and 20 research students making one of the largest research groups in the School of Electronic, Electrical and Computer Engineering.

Facilities

The group has **extensive facilities** including:

- two 12m-2 microwave and millimetre wave anechoic chambers
- network and spectrum analysers operating up to 110 GHz
- a microwave reverberation chamber
- access to a 70m-2 10,000 clean room
- large suite of commercial software for the simulation of microwave structures
- digitally modulated signal generator and vector signal analyser for analysis of transmitters and antennas
- a 40 meter long flight imitator that can carry a 50kg payload, unique to UK universities
- a range of computationally intensive Sun workstations for network simulation
- wireless and wired network testbeds.

Funding

Research funding, which totals **£1 million pounds** in current grants and contracts comes from a wide range of sources. This includes grants from the EPSRC, representing 50% of funding and 25% from industrial support. The remaining 25% comes from the Ministry of Defence, the Teaching Company Directorate amongst other sources including the Highways Agency, BAE Systems, Samsung, Toyota and QinetiQ.

Current Projects

Current projects being undertaken by the respective laboratories in the Communications Engineering group include the following:

- Antennas and Propagation for on-Body Communications Systems
- Low profile sensors for vehicle radar and communications
- Metamaterial antennas
- Antennas and propagation for medical implants
- Linear microwave transmitter architectures using computational intelligence techniques
- Antennas and front ends for vehicle millimetric communication systems
- Wireless Forward Scattering Radar network for situation awareness
- Space Surface BSAR with non-cooperative transmitter for surface monitoring
- UWB radar for concealed weapon and explosive detection
- Modelling data loss in large packet switched networks
- Game theoretic MAC protocols
- Distributed soft security in wireless networks
- Vehicle ad-hoc networks
- Reduction of Multi-user interference in Optical CDMA
- Ultra-short pulse propagation in optical amplifiers
- Novel Optical Filters for WDM applications

External Activities

The Academic staff in the group undertake a number of significant professional activities.

Prof. Peter Hall and Dr. Costas Constantinou are members of an EPSRC peer review college.

Prof. Peter Hall is Chairman of IEE Professional Group on Antennas and Propagation.

Dr. Costas Constantinou is an IEE Technical Advisory panel member for the Antennas and Propagation Professional Network, a Member of the National Radio Propagation Committee (Ofcom) Technical Group on Mobile and Terrestrial Propagation and UK and a panel member for the International Union for Radio Science (URSI).