UK THz Network and Projects - from robotically controlled Medical Imaging to Communications

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Abstract

The UK has a vibrant and highly active research community in terahertz (THz) technology and systems. The UK government, via the Engineering and Physical Sciences Research Council, recently funded a new THz Networkto encourage greater co-ordination of UK activities,and to enhance UK–international interaction,aroundsix key areas of UK THz strength.Each of theseis represented by a Special Interest Group co-ordinated by the Network:1) High-Frequency Electronics and Communication Systems; 2) Solid State and Quantum Materials, Devices, and Systems; 3) Healthcare; 4) Chemical and Biological Systems; 5) Astronomy and Earth Observation, and 6) Non-destructive Testing, Security and Process Monitoring. The Network is free to join and open to applications from interested companies and academics worldwide. It holds regular online and in-person meetings, with a budget to fund new collaborative activities between UK members and international colleagues.

In this talk, I will outline and highlight some of the work being undertaken by members of the Network, including the alignment of major funded programmes on quantum cascade lasers and communications, medical imaging, on-chip sensing, and several modalities of THz spectroscopy, including microscopy. I will also discuss some of the wide range of UK facilities availableto enhance collaborations between the THz Network members, including for THz imaging and spectroscopy, growth of compound semiconductors, and for measurements down to very low (<100 mK) temperatures, and in high magnetic fields.