

Beyond a single cycle of light: photonics for sub-cycle measurements and synthesis of terahertz waveforms

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This talk will highlight opportunities for terahertz and microwave science and technology from nonlinear integrated photonic circuits that are becoming increasingly accessible. Two platforms - hybrid silicon-organic and thin film lithium niobate – are emerging as leading platforms since they provide unprecedented design flexibility through custom-cut chip-scale components such as waveguides, resonators and terahertz antennas in combination with low-loss and high-performance nonlinear materials. Their present and future applications in fundamental research concerning metrology, photon generation and arbitrary waveform synthesis will be discussed.