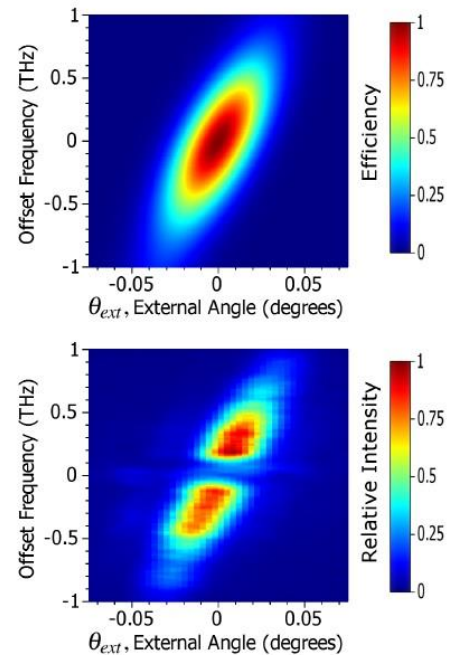


The importance of good alignment in THz systems

Matthew Cliffe (a PhD student jointly funded by the STFC Accelerator Science and Technology Centre at Daresbury Laboratory) and Darren Graham have just had a paper published in *Optics Express*. The article, which was written in partnership with colleagues from the University of Dundee, ASTeC and CERN, is focused on the role of misalignment-induced angular chirp in the electro-optic detection of terahertz waves. It is shown theoretically and experimentally that non-collinear phase matching produces an angular chirp in the generated optical signal. Due to this, in non-collinear THz and probe arrangements such as single-shot THz detection an undistorted THz signal is critically dependent on having sufficient angular acceptance in the optical probe path. The rate of misalignment-induced chirping in commonly used ZnTe and GaP detection schemes is tabulated, allowing ready analysis of a detection system.



The figure shows a comparison of calculated and experimentally observed chirp in spectral upconversion.

D.A. Walsh, M.J. Cliffe, R. Pan, E.W. Snedden, D.M.Graham, W.A. Gillespie, and S.P. Jamison, *Optics Express*, **22** 12028 (2014)

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<http://www.opticsinfobase.org/oe/abstract.cfm?URI=oe-22-10-12028&origin=search>