**Dual terahertz comb spectroscopy with a single free-running fibre laser**

Guoqing Hu1,2, Tatsuya Mizuguchi1,3, Ryo Oe1,3, Kazuki Nitta1, Xin Zhao2, Takeo Minamikawa3,4, Ting Li2, Zheng Zheng2,5, and Takeshi Yasui3,4

*1Graduate School of Advanced Technology and Science, Tokushima University, 2-1, Minami-Josanjima, Tokushima, Tokushima 770-8506, Japan*

*2School of Electronic and Information Engineering, Beihang University, Beijing, 100191, China*

*3JST, ERATO, MINOSHIMA Intelligent Optical Synthesizer Project, 2-1, Minami-Josanjima, Tokushima, Tokushima 770-8506, Japan*

*4Graduate School of Technology, Industrial and Social Sciences, Tokushima University, 2-1, Minami-Josanjima, Tokushima, Tokushima 770-8506, Japan*

*5Collaborative Innovation Centre of Geospatial Technology, 129 Luoyu Road, Wuhan 430079, China*

*\*Correspondence to: yasui.takeshi@tokushima-u.ac.jp*

This file includes:

Supplementary Figure 1

Supplementary Figure 2



Supplementary Fig. 1. **Principle of THz-DCS in time domain.** See Methods for details.



Supplementary Fig. 2. **Basic performance of spectrally separated and amplified dual-****-comb Er:fibre laser lights.** **a**, Optical spectra of separated 1-comb light and 2-comb light. **b**, Optical spectra of amplified 1-comb light and 2-comb light. **c**, Auto-correlation trace of amplified 1-comb light. **d**, Auto-correlation trace of amplified 2-comb light.