



INTERTANGLE

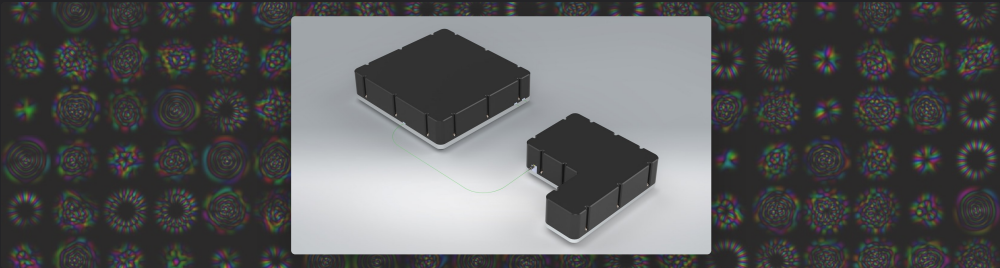
Developed at Heriot-Watt University



TECHNOLOGY VALIDATION · FIELD TRIAL

Benchtop Multimodal Entanglement System

Polarisation + spatial entanglement, generated, distributed, and certified using off-the-shelf components over commercial fibre — demonstrated live at BT’s Adastral Park. Operating at **810 nm** for high-efficiency APD-based detection and readily adaptable to the telecom band, the system was validated for intra-data-centre-scale performance.



Multimodal entanglement source + receiver module

First real-world validation — BT Adastral Park, 2025

Using polarisation **and** spatial structure at once, our benchtop system demonstrated multimodal entanglement distribution outside the lab for the first time — a proof-of-principle step toward robust and high-capacity quantum connectivity.

POLARISATION · SMF

Purity	75%
Fidelity	84%
Brightness	400 pairs/s/mW
Heralding	10%

SPATIAL · MMF

Dimensionality (1m)	d=3
Fidelity (1m)	75%
Dimensionality (5m)	d=2
Fidelity (5m)	59%

NAMED AMONG BT’S “MAJOR STRIDES” IN UK QUANTUM READINESS, 2025

“Ran the first real-world test of Heriot-Watt’s spin-out — Intertangle entanglement hardware, validating how entanglement can support new forms of secure communication and information processing.”

— BT



Scan for the full story

Underlying source technology published in *Nat. Phys.* 16, 1112 (2020).

DEVELOPED WITH SUPPORT FROM

