



QUANTUM COMMUNICATIONS HUB

Collaboration for UK Quantum Communications in Space

Working closely with partners, the Quantum Communications Hub has been actively exploring options for advancing UK research-led development in satellite quantum communications - an area of growing strategic importance.

Some countries have made very rapid progress, led by China, which launched the world's first major quantum communications satellite as part of a much larger quantum technologies programme. Others, notably Canada, Japan, Singapore and Switzerland – all have programmes at various stages of development, and aimed at commercial exploitation.

The UK is currently playing a leading part in two significant satellite QKD developments: a bilateral R&D mission with Singapore, and an ESA-backed industrial consortium to demonstrate commercial satellite QKD in preparation for delivery as a global service.

The Hub itself is funding a number of feasibility studies / initiatives aimed at preparing the way for more substantial development. These include modelling of cube-sat missions for R&D; atmospheric visibility simulation; satellite QKD threat analysis; UK manufacturing capability of advanced QKD receivers for use optical ground-stations / terminals.

Satellite quantum communications is set to be a significant element in the next phase of the Hub, with the objective of rapidly developing advanced, research-led technologies for use in both R&D and future commercial programmes. Such development complements other strategic UK investments, e.g. the National Satellite Testing Facility at Harwell, geared to supporting exploitation of both the science and technology of space – including, but not limited to, communications.



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