Integrating quantum optics and photon sources for fibre and satellite communications

Dr. Max Sich
CEO, Aegiq

EPIC World Photonics Technology Summit
24 Jan 2022
About us

Dec 2019
Aegiq spun-out from the University of Sheffield

July 2020
Awarded QComms Hub project to develop iSPS® based on novel colour centres.

June 2020
Innovate UK funding to develop iSPS® based satellite QKD payload demonstrator as part of ‘Next Generation Satellite QKD’

August 2020
Innovate UK funding to participate at ‘QT Assemble: Integrated Quantum Technology Programme’

July 2021
Awarded in Innovate UK funding to co-develop integrated optics for quantum information

Oct 2021
Awarded the prestigious Start-up Award 2021 from the Institute of Physics.

Jan 2022
Closed a 7-figure seed round to deliver iSPS®-based quantum information technology to market.

Integrating quantum optics and photon sources for fibre and satellite communications - EPIC World Photonics Technology Summit. © Aegiq - Max Sich
A platform to provide quantum connectivity everywhere?
Quantum links – Quantum Key Distribution example

Quantum link

Encryption of all traffic or selective encryption of specific protocols

Key extraction via API calls

Data link via any standard channels (optic, RF, ethernet)

Data and quantum links can share the same fibre via WDM if the fibre is ‘dark’ end-to-end

Quantum optic link

Key management system

Encrypted data link with post-quantum crypto algorithms
Less is more – single deterministic photons (iSPS®) for truly quantum applications

Deterministic
Definitely one photon per trigger

Indistinguishable / identical
No physical way to tell the difference between emitted photons

High-purity
Always just one photon and nothing else
Less is more – single deterministic photons for better quantum communication links
Our spectrum

Integrating quantum optics and photon sources for fibre and satellite communications - EPIC World Photonics Technology Summit. © Aegiq - Max Sich
Challenges

Integrating quantum optics and photon sources for fibre and satellite communications - EPIC World Photonics Technology Summit. © Aegiq - Max Sich
Challenges

Integrating quantum optics and photon sources for fibre and satellite communications - EPIC World Photonics Technology Summit. © Aegiq - Max Sich
Challenges

Integrating quantum optics and photon sources for fibre and satellite communications - EPIC World Photonics Technology Summit. © Aegiq - Max Sich
Challenges

- Integrating quantum optics and photon sources for fibre and satellite communications - EPIC World Photonics Technology Summit. © Aegiq - Max Sich
Let’s do something awesome together!

We offer

Single-photon platform with flexibility to customise for multiple applications

We are looking for

- Partners to help us further develop manufacturing chain
- Users to try it out (metrology, calibration, computing, comms)