

# Astro photonics and highly-multiplexed spectroscopy

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**Talk abstract:** Astro photonics - the application of photonics to astronomy - has the capacity to revolutionise astronomy in many areas including spectroscopy and interferometry (where it has already made an impact). Highly-multiplexed spectroscopy is a vital technique in modern astronomy, allowing, for example, the cosmic equation of state to be determined and the assembly of galaxies to be understood. It has been applied successfully on medium-size telescopes (4m) and now large telescopes (8m) but will be difficult to apply to the new extremely-large telescopes (20-40m). Photonics may play a vital role here in miniaturising and modularising the spectrometers.

**Speaker biography:**

Born 1957, Dartford, UK.

BSc Physics, Bristol University, 1978

PhD astronomy, Cambridge University, 1983

Post-doctoral research at MSSL, then Durham

Lecturer/Reader, Durham University, since 1992

Associate director of The Centre for Advanced Instrumentation

**Research activities:**

Extragalactic astronomy including cosmological evolution of radio sources, environmental influence on galaxy evolution and mapping of active galactic nuclei.

Astronomical instrumentation: Leading role in many spectrograph projects including the two Gemini Multiobject Spectrographs, Low Dispersion Survey Spectrograph and Faint Object Spectrograph for the William Herschel Telescope. Pioneer of integral field spectroscopy on large telescopes and monolithic image-slicing integral field units. Leader of AstroPhotonica Europa partnership.

Current research interests include astro photonics , highly-multiplexed fibre systems and the application of astronomical technology to bio-medical imaging.