Photons speak Volumes
How advanced light sensors can improve medical diagnosis

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THE PROTEUS PROJECT

The Proteus project focuses on developing an optical fibre based sensing and imaging platform for detection of pathogens inside the lung of critically ill patients in vivo in situ. We plan to deploy CMOS SPAD line sensors into this system for video rate spectral fluorescence lifetime imaging (FLIM) and detection of various physiological parameters in the lung.

ACKNOWLEDGEMENTS

We would like to thank Engineering and Physical Sciences Research Council (EPSRC, United Kingdom) Interdisciplinary Research Collaboration grant (EP/R02337X/1) for funding this work. The work presented here includes the efforts of a large team too numerous to mention individually.

REFERENCES


SUMMARY AND PLANS

We built the fastest TCSPC based TRFS system to date. This advances many fields relying on measuring changes in fluorescence such as studying Förster resonance energy transfer (FRET) or protein folding dynamics [5]. Different modalities such as time-resolved fluorescence spectroscopy, time-resolved Raman spectroscopy, and OCT are further to be investigated to integrate in a multi-modal setup.