

MQ Photonics Research Centre Seminar

Wednesday, 18 August 2021, 2:00 pm (Online via the zoom link below)

Plasmonic filters & nanophotonic all-optical image processing

Prof. Ann Roberts

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Abstract:

The interaction of light with matter on the nanoscale has the potential to revolutionise optics and underpin the next generation of technologies. This talk will focus on several aspects of the use of plasmonics for modifying and sensing properties of light such as its spectral content, polarisation state and phase. The first part of the presentation will discuss the use of plasmonic filters to generate structural colouration and the potential for scalable fabrication using nanoimprint lithography. Examples of the integration of these devices into photodetectors will also be discussed. The visualization of phase is essential for characterizing weakly absorbing samples such as live cells. In the second part of this seminar, the use of nanoscale resonant gratings and other thin film structures for manipulating images of both amplitude and phase objects will be presented.

Speaker biography:

Prof. Ann Roberts obtained B.Sc. (Honours) and Ph.D. degrees in physics from the University of Sydney. After a position as a postdoctoral associate in the School of Electrical Engineering at Cornell University, she took up an academic position in the School of Physics at the University of Melbourne. Professor Roberts has diverse research interests in physical optics and photonics. She is a Fellow of the Australian Institute of Physics, the Optical Society and the SPIE and a former President of the Australian and New Zealand Optical Society. Professor Roberts is a Chief Investigator in the ARC Centre of Excellence for Transformative Meta-Optical Systems (TMOS).

URL to join: <u>https://macquarie.zoom.us/j/85829287435</u> Dial-in phone line: +61 2 8015 2088, Meeting ID: 858 2928 7435

