



**University  
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# CAMTEC SEMINAR

- TITLE:** *New Approaches to Image Processing: Meta-Optical Devices*
- SPEAKER:** *Dr Lukas Wesemann, University of Melbourne, ARC Centre of Excellence for Transformative Meta-Optical Systems (TMOS)*
- DATE:** Thursday, July 7, 2022
- TIME:** 1:00 – 2:00 pm
- LOCATION:** ECS 660

**Abstract:**

Meta-optical devices have been proven to enable manipulation and sensing of light in ways not possible with conventional optical components. In this presentation we discuss structural colouration, meta-optical image processing and the integration of optical metasurfaces with photodetectors. Our results demonstrate the use metasurfaces and thin-film devices for pigment-free colouration, photodetectors with enhanced sensing capabilities, real-time detection of edges in optical images, the visualisation of phase modulations in an optical field as well as their application to bioimaging.

**Bio:**

Lukas Wesemann is a Postdoctoral Research Fellow in Meta-Optics at the University of Melbourne node of the ARC Center of Excellence for Transformative Meta-Optical Devices (TMOS). His research focuses on meta-optical devices that miniaturize optical computation and image processing. These devices have potential for use in future mobile medical equipment as well as attachments to camera lenses and compact virtual reality equipment. He received his PhD degree from the University of Melbourne in 2021 in the field of optical metasurfaces for image processing applications. Prior to that he worked in the field of nonlinear optics and femtosecond laser writing during his MSc at the University of Muenster, Germany.

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