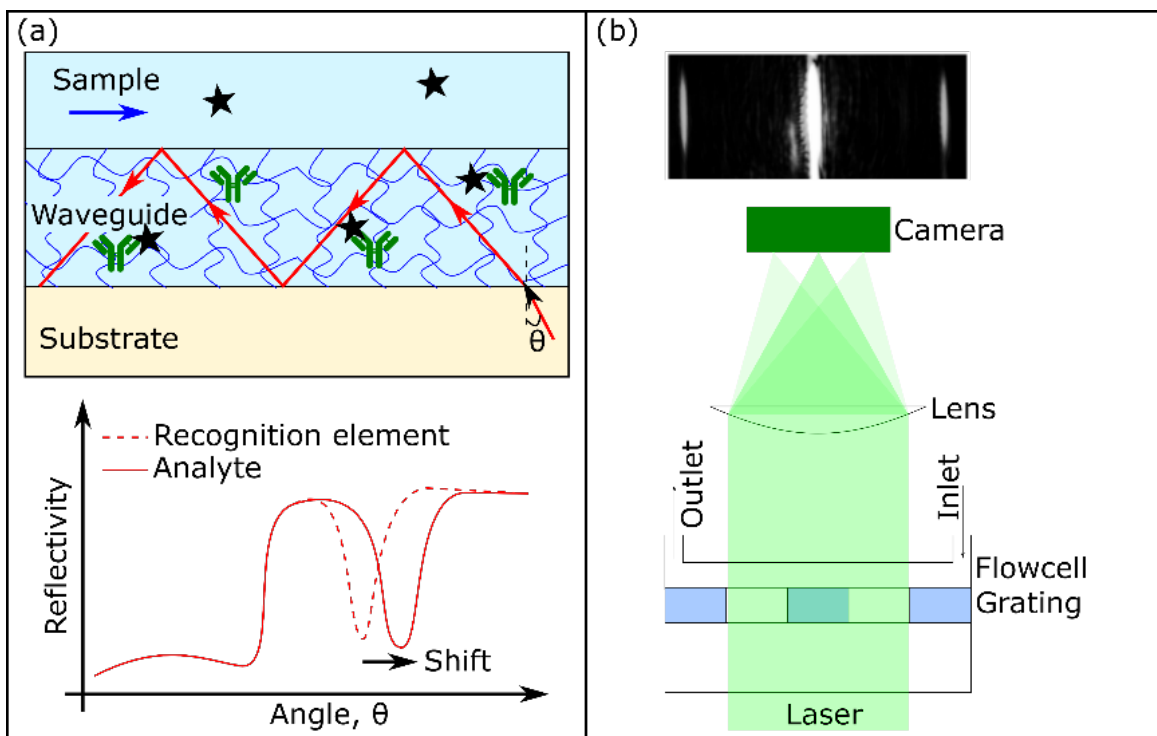


Optics and Photonics Group  
Lunchtime Seminar

# “Optical biosensors”

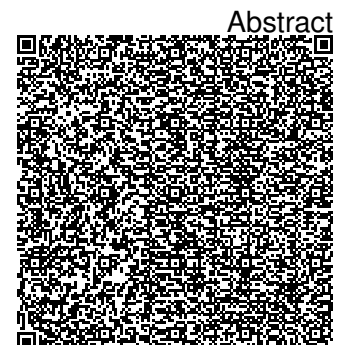
Ruchi Gupta

*School of Chemistry, University of Birmingham*



1:00pm Wednesday 24th July 2019  
B21 Physics building  
All Welcome

[http://optics.nottingham.ac.uk/wiki/Talks\\_2019](http://optics.nottingham.ac.uk/wiki/Talks_2019)



# “Optical biosensors”

Ruchi Gupta

1:00pm Wednesday 24th July 2019

B21 Physics building

All Welcome

The research in my group is focused on developing optical biosensors, which are defined as recognition elements in contact with a transducer. We make transducers out of porous hydrogels to improve sensitivity and limit of detection by (1) immobilising large number of recognition elements in the 3D matrix of hydrogels and hence lots of binding sites are available for analytes, and (2) maximising the overlap between recognition element-analyte complex and light used to probe the biochemistry. The work in my group is primarily focused on label-free biosensors where binding of the analyte to recognition elements results in a change in refractive index. The change in refractive index is converted into a more easily measurable signal using a transducer based on either waveguides or interferometers or diffractive optical elements (e.g. gratings). I will then discuss the work (i.e. an internally referenced biosensor and integration of electrophoresis with biosensors) done in my group to address some of the challenges involved in translation of optical biosensors from research laboratories to clinical diagnostics.