

## **Physics Helping to Advance Life Science Research**

This seminar will look at the role that optics, soft and hard matter physics is playing in helping to advance research in the life sciences. Three specific areas of biological interest will be explored demonstrating the breadth of physics that can be utilized in this arena. In the first by considering the tooth as a hard crystalline material it can be shown to behave as a photonic crystal and using these physical properties early disease can be detected. In the second controlled drug delivery to the retina to treat ARMD will be considered as a soft matter physics challenge showing how optical tweezers are advancing the understanding of the structure of the eye. The final area is the application of optical methods, in particular adaptive optics, to microscopy to help in heart disease research.

**Prof John Girkin, Director Biophysical Sciences Institute, Durham University**