**Advanced Technology Research: Beihang Summer School at Cambridge**

The summer school will have four courses/themes, each lasting 7.5 hours, and two per week.

**1. Nanotechnology**

In this course, we will look at what Nanotechnology is and where it is used. We will explore the evolution of modern science and see how it paved the way for nanoscience, which set the foundations for nanotechnology. We will look at the basic scientific principles behind the properties of matter and how and why they change at the nanoscale, and see how to make use of this in our everyday lives in areas such as automotive and aerospace, medicine, construction, computing and cosmetics as examples. There will be some hands-on experience with an atomic force microscope that is used to visualise nanometer structures at the heart of nanotechnology.

**2. Quantum technologies**

In this course, we will look at what quantum technologies are, where they have come from and where they can and are being used. We will explore the foundations of quantum mechanics and how they led to a deepening of our understanding of the world around us, and how many of the properties of matter can be explained. We will look at how this has led to novel devices in computing, data storage, information processing and other fields, and gain an appreciation for this often-misunderstood branch of science.

For these two courses, the instructor will be [Dr Colm Durkan](http://www.nanoscience.cam.ac.uk/directory/cd229%40cam.ac.uk), a Reader in the Engineering Department and a Fellow at Girton College.

Introductions to the other two courses will be available in the next few weeks.