

The Next Generation of Nuclear Power

Presented by: **Prof. James Marrow** (Professor in Energy Materials, Oxford University)

Evening Lecture: Wednesday 30th October 2019

Doors open from 17:30 for 18:00 start. Refreshments and light buffet provided

Ridgeway House, Rutherford Appleton Laboratory, Harwell Campus, Didcot, OX11 0QX (Opposite to Rutherford Appleton Laboratory)

Lecture Synopsis:

In the general context of increasing world energy demands and climate change, there is increasing pressure to develop sustainable energy technologies. Nuclear energy can contribute to this, but although light water reactor (LWR) nuclear fission is broadly considered a low-carbon energy technology, there is a need to develop breakthrough technologies now in order to prepare for the longer-term future of nuclear power. In particular, fast neutron reactors with closed fuel cycles offer the potential to reduce the volumes of high-level waste and also contribute to the more efficient use of uranium resources.

This broad class of next generation nuclear fission plant concepts are generally referred to as "Generation IV" systems or concepts. The foreseen operating conditions of the Generation IV concepts will place significant demands on their structural materials. The talk will focus on some of the key challenges in the forerunner designs.

