**MSc Cell & Tissue Engineering / Biomedical Engineering Seminar Programme**

**Dr Deborah Mason**

*Reader in the School of Biosciences, Cardiff University; Co-PI and Team Leader in the Arthritis Research UK Biomechanics and Bioengineering Centre*

**Presenting:**

“**Gutamate Receptor Antagonists in Arthritis: a link between pain, inflammation and biomechanics?**”

**Wednesday 23rd March 2016, 1.00 pm**

**Guy Hilton Research Centre, Thornburrow Drive, Hartshill**

**Abstract**

Osteoarthritis (OA) causes pain and disability and affects 8.5 million people in the UK. There is no cure for OA with joint replacement the only option when pain becomes unbearable. We have discovered that signalling pathways activated by mechanical load drive the inflammation, degeneration and pain that are the hallmark of osteoarthritis. Glutamatergic signalling is regulated by mechanical loading of bone and glutamate concentrations increase in patients with OA, rheumatoid arthritis and in animal models of arthritis. Glutamate receptors (GluR) can influence joint pain, inflammation and degeneration, representing potential drug targets for arthritis treatment.

Dr Mason will present her groups research showing that intra-articular injection of the AMPA/KA GluR antagonist, NBQX, significantly reduced knee swelling, pain and joint destruction in inflammatory arthritis (rat antigen induced arthritis, Bonnet et al. 2013) and in two models of osteoarthritis (meniscal transection in the rat; anterior cruciate ligament rupture in the mouse). She will also present her current investigations on biological mechanisms underlying these effects of NBQX in animal, cell and human models of altered loading.