11.30 Rymer Auditorium

***Osseointegration* by Gordon Delap, with sound synthesis by Stefan Bilbao**

Osseointegration, is concerned with the exploration of the creative potential in the interchange of ideas between sound art and audio engineering. Some of the most innovative and exciting developments in the field of creative audio occurs in areas in which a dialogue between conventional disciplines occurs. The work is wholly constructed using sounds created through physical modelling sound synthesis algorithms developed by one of the collaborators (Bilbao). The sound artist (Delap) aspires to employ these elements in the construction of a virtual auditory environment focused around the outputs of this research. Both authors impel the direction of the raw materials underscoring the work, and determine its eventual identity.

One of the great benefits of physical modeling sound synthesis, beyond the extremely rich variety of realistic timbres which may be generated, is the potential for spatialisation. The sound materials in *Osseointegration* are derived from the use of large-scale numerical methods to simulate the vibration of percussion instruments, which are based on physical models of plate dynamics. The virtual plate model may be excited through a variety of means. The most straightforward is through striking or bowing, but the instrument may also be driven by a completely different audio waveform. In all cases, the excitation point may be varied spatially and temporally. Multiple outputs, possibly varying, may be read from different positions on the same virtual plate, and sent to separate channels, leading to very coherent sound spatialisation. Preliminary work in spatialisation to 8+ channels and exploration of creative applications of the material was carried out at the Sonic Arts Research Centre, at the Queen's University Belfast in spring 2005. Audio engineering work was carried out at the University of Edinburgh, creative applications of the work were undertaken at the Technical University, Berlin.