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## **Investigation of a possible wear mechanism at the cement head interface in hip resurfacing arthroplasty**

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### **ABSTRACT**

Hip resurfacing arthroplasty is the latest development in the use of prosthetic joints in treating disorders such as osteo-arthritis, rheumatoid arthritis and necrosis of the hip. The third generation of resurfacing components requires only initial shaping of the femoral head, removing minimal cortical bone, thus preserving bone stock, the rationale being, the ability to offer the procedure at an earlier stage in life, as the possibility of primary traditional THR is retained. The hard on hard bearing combinations employing low friction metal alloys serve to minimise wear at the head cup bearing interface. There have been reports of aseptic loosening of the femoral component (Nishii et al 2007) and with the minimal wear generated at the bearing interface. In this study the back side of the component which typically interfaces with PMMA bone cement has been investigated using techniques developed when investigating fretting wear of femoral stems used in the more traditional total hip replacement procedures through simulation.

Key words: Wear, femoral stem, simulation, resurfacing

Topic: Biometrology