**Title: Fatigue Testing and Characterisation of an Additive Manufactured Titanium Alloy – Rob Plaskitt, HBM Prenscia**

Abstract: This presentation summarises strain-controlled fatigue testing of a titanium Ti-6Al-4V alloy, additive manufactured by “electron beam melting” (EBM). The EBM material is manufactured in two conditions; with no post-manufacture heat treatment (“As-Built”) and after a hot isostatic pressing (HIP) treatment. The EBM HIP treatment condition is manufactured in three build orientations; vertical, horizontal and at 45°. The fatigue test results for these EBM material conditions are compared with those for similar titanium Ti-6Al-4V alloy powder, manufactured by powder metallurgy hot-isostatic pressing (PM HIP), and for similar titanium Ti-6Al-4V alloy manufactured by traditional wrought mill into bar and sheet material.