## **REFLECTIVE METALLIC COATINGS FOR FUSION APPLICATIONS**

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Metallic mirrors are foreseen to play a crucial role for all optical diagnostics in ITER. Therefore, the development of reliable techniques for the production of mirrors that are able to maintain their optical properties in the harsh ITER environment is highly important [1]. By applying magnetron sputtering and evaporation techniques, rhodium and molybdenum coated metallic substrates have been prepared for tests under erosion conditions in TEXTOR [2]. The films were characterized in terms of chemical composition, surface roughness, crystallite structure, nanohardness and reflectivity. No impurities were detected on the surface after deposition. The effects of deposition parameters and substrate conditions on the resulting crystallite structure and surface roughness, and hence on the reflectivity, were investigated. The films are found to exhibit nanometric crystallites with a dense columnar structure. Open boundaries between the crystallite columns, when present, are found to reduce the reflectivity as compared to rhodium or molybdenum references.

[1] L. Marot et al. Rev Sci Instrum. 78 (2007) 103507.

[2] M. Matveeva et al. 37th EPS Conference on Plasma Physics, June 21-25, 2010, Dublin, Ireland.