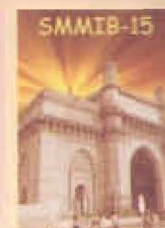




University of Mumbai

SMMIB-15



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15th International Conference on Surface Modification of Materials by Ion Beams

Final Program and Abstracts

30th September to 5th October, 2007

Mumbai, India

Organised by University of Mumbai and Materials Research Society of India (Mumbai Chapter) in association with
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Enhancing Corrosion Resistance of Biomedical AZ91 Magnesium Alloy by ZrN/Zr Bio-ceramic coating

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Magnesium alloys are potential materials in biodegradable hard tissue implants. However, the fast degradation of magnesium in a physiological environment constitutes the main limitation. In this work, a ZrN/Zr bilayer coating was successfully deposited on AZ91 magnesium alloy using a filtered cathodic arc deposition system. The deposited coating is characterized by X-ray photoelectron microscopy (XPS). Electrochemical chemical tests including potentiodynamic polarization test, open circuit potential evolution and electrochemical impedance spectroscopy (EIS) are conducted in simulated body fluids to characterize its electrochemical behavior. The results disclose that corrosion resistance of coated alloy is significantly improved.

Key words : biomedical magnesium alloy, corrosion resistance, ZrN, bilayer coating

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