

Research of erbium oxide coating on the China low activation martensitic steel (CLAM)

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Erbium oxide coating is considered as one of candidate materials for both ITER and future fusion reactor liquid lithium blanket due to their high electrical resistance and their high compatibility with liquid lithium. In this research, the metal Er coating was prepared by magnetron sputtering method on China Low Activation Martensitic (CLAM) substrate and then annealed in air with different temperature to obtain Er₂O₃ coating, the remaining metal Er was performed as the buffer between coating and substrate in order to improve the adhesive property. The coating had better crystallinity observed by X-ray diffraction (XRD) with high annealing temperature. It was also found that diffusion layer exist between metal Er and substrate according to Auger Electron Spectroscopy (AES). The structural properties, surface morphology and some other physics properties of the coating were also studied.