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Application of ion beam assisted deposition for the preparation of films with flexible substrateYang Miao¹, Feng yu dong²¹Lanzhou Institute of Physics, Lanzhou, China ²Lanzhou Institute of physics, Lanzhou, China

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Flexible materia is a kind of commonly used substrate for coating. It has many advantages,such as light weight□low price□small volume□easy to folding,and easy to prepare large area. But the usual flexible substrate materials were generally made of organic materials,so they usually can not resistant to high temperature.And some traditional technique for coating which need to working in high temperature are not suitable for flexible substrate materials. Ion beam assisted deposition(IBAD) technique was well known worldwide and was used frequently to modify mechanical ,electrical ,optical, tribological,and other physical and chemical properties of surface.It Combined ion beam bombardment with PVD . The bombardment of energetic ions made the diffusion between the deposited atoms and the substrate atoms, and the adhesion of the film and substrate was improved ,so we can prepare excellent films at low temperature. The basic principle of ion beam assisted deposition and the latest application of coating on various flexible substrates were introduced in this paper. Especially the research results of the thermal control coating on flexible polyimide(PI) substrate by ion beam assisted deposition technology in Lanzhou Institute of physics(LIP) were introduced in this paper. Finally, the development trend of ion beam assisted deposition technique in the field of flexible substrate coatings was discussed.

Keywords

ion beam assisted deposition
films
flexible substrate