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## Study on Surface Flashover Properties of PTFE by Ion Implantation

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The surface flashover across the insulators is the major limitation of the performance for the high voltage system. Surface flashover voltage is mainly affected by the surface properties of the materials. Therefore, it has become an important technical means to improve the surface flashover voltage of insulation materials by a series of surface treatment technology. As a new material surface treatment technology, ion implantation can change the surface roughness, resistivity and adsorption. In this paper, the surface morphology and dielectric properties of PTFE were studied by nitrogen ion beam implantation. The ion implantation experiments were carried out by changing the injection time and energy density. The surface flashover experiments were carried out in a vacuum chamber. In order to find the influencing factors on surface flashover properties modified by ion implantation, the simulations on ion implantation was completed by using SRIM software. The experimental results show that the insulation properties and microstructure of PTFE are changed after ion implantation, and the ion implantation technique can improve the vacuum surface flashover voltage of PTFE.

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