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THE RESEARCH ON GAS COMPOSITION AND CHARGED PARTICLES OF LEO

Abstract

Small magnetic deflection mass spectrometer is a instrument for mass spectrometric quantitative analysis of gas composition, it can realize gas collection of gas satellite orbit. Spatial mass spectrometer is specially used for space special environment and particle detection. Compared with other mass spectrometer, it is more simple in design, more stable quality, higher resolution and filtration, superior abundance sensitivity, and lesser electromagnetic interference with other instruments and systems. This paper will introduce the design and the application of small magnetic deflection mass spectrometer for gas composition and charged particle detection. Based on the quantitative analysis of earth space gas data and charged particle activity, gas composition, concentration, spatial variation, mechanism, influence factors and the law of charged particle activity can be acquired. Aspects of its application in the gas composition detection of satellite orbit, space induced environmental pollution detection, the atmospheric detection of ecological protection system, space environment simulator equipment test, etc., can guarantee our aerospace product quality, improve the status of our country in the international aerospace industry.

Keywords: Small magnetic deflection mass spectrometer; gas composition; charged particles.