SPECTROSCOPIC STUDIES OF A STATIONARY SLIGHTLY IONIZED CENTRIFUGE

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Abstract

The rotation rate of neutral gas in a slightly ionized stationary centrifuge has been studied. The rotation rate was estimated from the Doppler shift of a neutral helium line He I = 4471 Å. The corresponding dispersion was obtained with a ISP-51 spectrograph and Fabri-Perot interferometer. The Doppler shift of a helium line was found equal to 0.2 Å, corresponding to the rotation rate of 10^6cm/sec. The other parameters are as follows. The neutral gas pressure p 10^{-3}mm Hg, magnetic field H 5 kOe, radial electric field E 400 v/cm.

The electron temperature was estimated from the ratio of two spectral line intensities with the wavelengths of 4713 Å and 4922 Å. It is found to be 30 ev. The temperature of neutrals was determined from the Doppler broadening of spectral lines.