

**Practical round. Problems to solve** **β -8. Jupiter.****A. Rotational velocity**

Spectrum of Jupiter (Fig. 1) was obtained when the slit of a spectrograph was aligned along the planet's equator. Wavelengths (λ) of several recognized lines are shown. Due to Jupiter rotation the reflected Sunlight was affected by the Doppler effect. The spectral lines become inclined, because the spectrum of light reflected from the receding part of Jupiter is red-shifted, and of light reflected from the approaching part is blue-shifted. Non-inclined lines, which are visible in the spectrum, were formed in the Earth atmosphere.

A.1. Evaluate the mean scale of the given spectral interval (**N**), in nm per mm.

A.2. Measure the difference between the uppermost and the lowermost end of an inclined spectral line in mm (**dx**) and convert it into nm (**d λ**). Do this for 3 lines independently.

A.3. Calculate the equatorial rotational velocity of Jupiter (**v_r**) for each measured line and the final averaged value (**v_{r_avg}**).