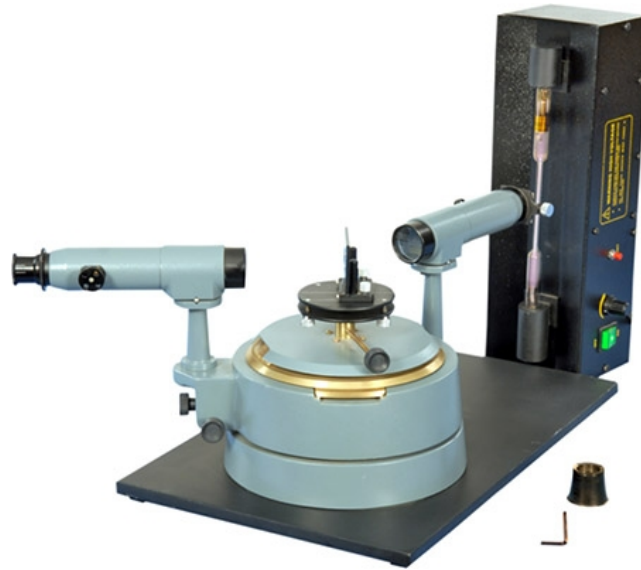




Rydbergs constant and spectrometer

Nvis 670



Note Shown image is just for illustration original may differ

Principle and Working:

Hydrogen atoms in a discharge lamp emit a series of lines in the visible part of the spectrum. This series is called the Balmer series which continues into the ultraviolet range. Rydberg generalized the Balmer's formula in terms of wave numbers to describe wavelengths of spectral lines of many chemical elements. For hydrogen the Balmer's formula becomes a special case of Rydberg's formula and is given by

$$1/\lambda = R(1/2^2 - 1/n^2)$$

here n are integers, 3, 4, 5, ... up to infinity and

R is Rydberg constant ($R = 4/B$ where B is the Balmer's constant). In the present setup, the spectral lines of hydrogen is observed by means of diffraction grating. The wavelength of the visible lines of Balmer series of hydrogen are measured by spectrometry.

Technical Specifications

- Apparatus to determine the Rydberg's constant with the help of diffraction grating (15000 lines/inch) and hydrogen discharge tube.
- Complete with high voltage power supply, grating and spectrometer, Micrometre Variable Slit