UA-06 Demonstration of Balmer series

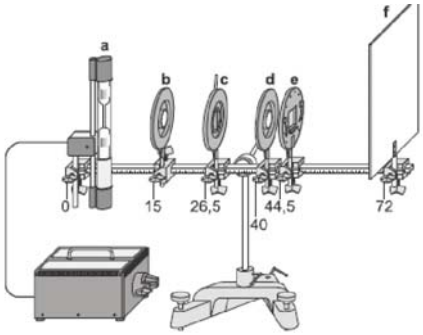
The spectral lines of hydrogen and mercury are examined by means of a diffraction grating. The known spectral lines of Hg are used to determine the grating constant. The wave lengths of the visible lines of the Balmer series of H are measured.

Tasks

1. Determination of the diffraction grating constant by means of the Hg spectrum.
2. Determination of the visible lines of the Balmer series in the H spectrum, of Rydberg's constant and of the energy levels.

Futures

- Diffraction image of a diffraction grating
- Visible spectral range
- Single electron atom
- Atomic model according to Bohr
- Lyman-, Paschen-, Brackett and Pfund Series
- Energy level
- Planck's constant
- Binding energy
- For safety we avoid direct viewing of lamps and the image be on screen. And the lamps are in housing shielding its high voltage pins.



a Balmer Lamp Hg/H, **b** Imaging lens f=50mm, **c** adjustable slit, **d** imaging lens f=100mm, **e** grating, **f** screen

This is a demonstrating figure, all be on 1M triangle rail.