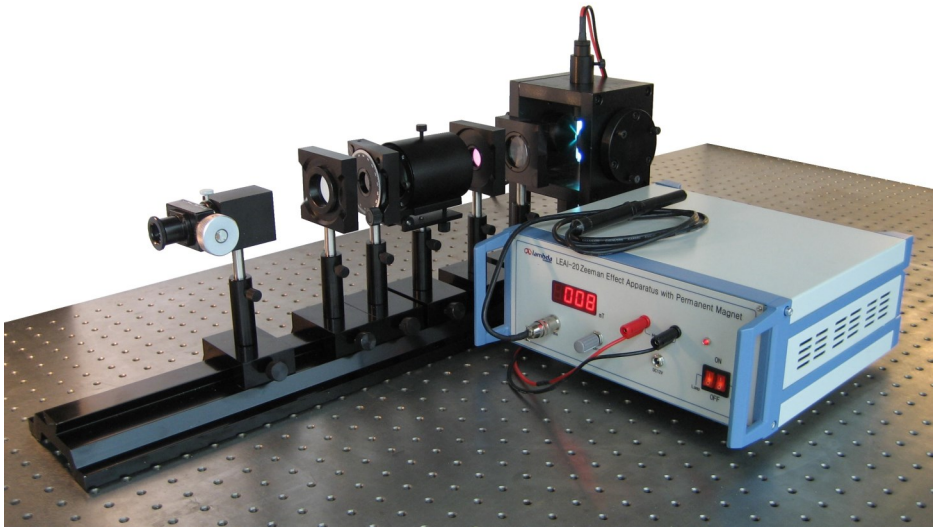
Construct, Conduct & Comprehend Physics Experiments

LEAI-20 Zeeman Effect Apparatus with Permanent Magnet



- *Permanent magnet for high intensity and stable magnetic field*
- *Variable magnetic field intensity through spacing adjustment of poles*
- *High accuracy Teslameter included*
- *Optional CCD and software for Windows 7, 32/64-bit computers*
- *Affordable*

This LEAI-20 experimental system of Zeeman effect with permanent magnet consists of a main machine unit (including Teslameter, light source power supply, etc.), a permanent magnet, a pencil Mercury lamp, focusing/imaging lenses, an interference optical filter, a F-P etalon, a polarizer, a direct reading microscope, a CCD camera (optional), a USB image acquisition box (optional), and analysis software (optional). It is an ideal experimental instrument for advanced physics laboratories.

Using this unit, the following experiments can be conducted:

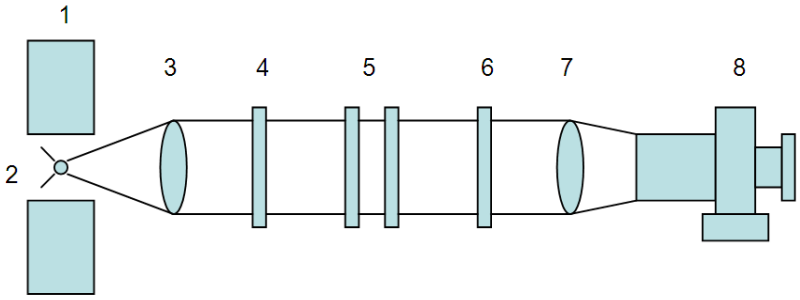
1. Observe Zeeman effect, and understand atomic magnetic moment and spatial quantization.
2. Observe the splitting and polarization of a Mercury atomic spectral line at 546.1 nm.
3. Calculate the electron charge-mass ratio based on Zeeman splitting amount.
4. Learn how to adjust a Fabry-Perot etalon and apply a CCD device in spectroscopy.

Specifications

Permanent magnet	intensity: 1360 mT; pole spacing: > 7 mm (adjustable)
Etalon	dia: 40 mm; *L* (air): 2 mm; passband:>100 nm; *R*= 95%; flatness < λ/30
Teslameter	range: 0-1999 mT; resolution: 1 mT
Pencil mercury lamp	emitter diameter: 7 mm; power: 3 W
Interference optical filter	CWL: 546.1 nm; half passband: 8 nm; aperture: 19 mm
Direct reading microscope	magnification: 20 X; range: 8 mm; resolution: 0.01 mm
Lenses	collimating: dia 34 mm; imaging: dia 30 mm, f=157 mm

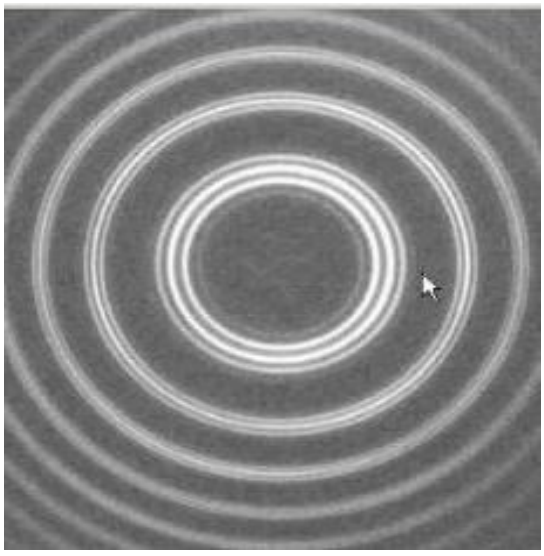
Part List

Main Machine Unit	1
Pencil Mercury Lamp	1
Milli-Teslameter Probe	1
Mechanical Rail	1
Carrier	6
Collimating Lens	1
Interference Filter	1
F-P Etalon	1
Polarizer	1
Imaging Lens	1
Direct Reading Microscope	1
Power Cord	1
Instruction Manual	1
Optional CCD, USB & Software	1 set



1. Magnet, 2. Mercury lamp, 3. Condensing Lens, 4. Filter
5. F-P etalon, 6. Polarizer, 7. Imaging Lens, 8. Microscope (or CCD)

Schematic of experimental setup



Note: above product information is subject to change without notice.

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