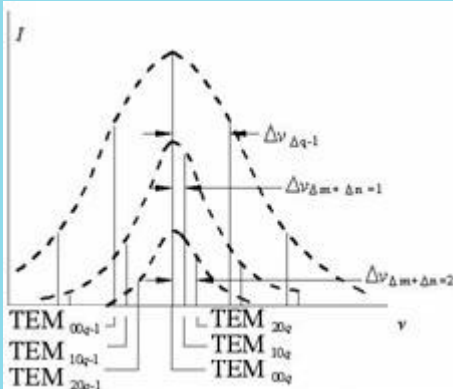
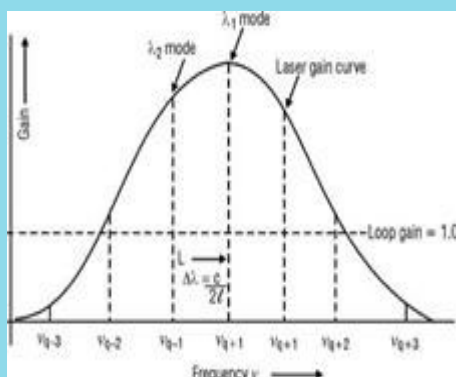


LEOI-54 Experiments of He-Ne Laser and Laser Resonator

- Open structure promotes hands-on skills
- Semi-internal cavity and stable mechanical parts
- Large range of adjustment of output mirror
- Precise Measurement



Laser longitudinal & transverse modes



Laser gain curve & longitudinal modes

The He-Ne laser serial experimental system (LEOI-54) is designed with an adjustable He-Ne laser cavity. By changing the cavity length or the radius of curvature of the cavity output mirror, corresponding change in lasing mode can be observed. The use of a confocal spherical scanning interferometer (optional) further allows students to directly observe the frequency distribution pattern of both longitudinal and transverse modes of a He-Ne laser. The scanning interferometer is also used to measure the frequency spacing between laser modes. Other optical parameters such as the spot size and the beam divergence angle of a He-Ne laser, and the free spectral range and the finesse of a scanning Fabry-Perot interferometer can be also measured with this system.

Experimental Contents

1. Set up and align optical path to meet resonance conditions to generate laser.
2. Observe and measure change of laser modes and power output by adjusting cavity length.
3. Measure waist size and divergence angle of laser beam.
4. Understand working principle and theory of laser resonator.
5. Measure laser gain by inserting loss adjustable device in laser cavity.

Parts and Specifications

Optical bench	Length: 1 m	1
Alignment laser	4 mW laser diode at 650 nm with 2-D adjustable holder	1
He-Ne laser tube	250 mm semi-internal cavity with 4-D adjustable holder	1
Laser driver	Current adjustable	1
Dielectric mirror	Incl precise 2-D adjustable holder	1
Laser power meter	3-1/2 digits Scale: 200 μ W, 2 mW, 20 mW, 200 mW Resolution: 0.1 μ W	1
Gain measurement device	with 2-D adjustable holder	1
Expander lens	40 X, with 2-D adjustable holder	1
Pin-hole	Φ 1 mm, with 2-D adjustable holder	1
White screen	100 mm \times 80 mm	1
Slider		1
F-P scanning interferometer	Free spectral range: 4 GHz; finesse: >100	Optional
Power cord		2
Instruction manual		1

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