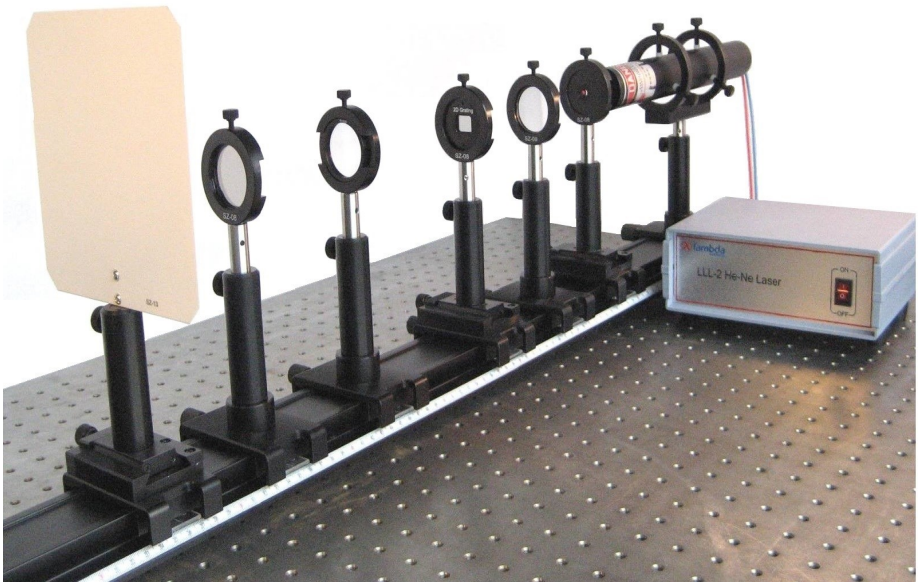
Construct, Conduct & Comprehend Physics Experiments

LEOK-42 Fourier Optics Experiment Kit



- *Including He-Ne laser with power supply*
- *Flexible configuration*
- *Detailed instruction manual*

This Fourier Optics Experiment Kit contains two portions of experimental contents, namely optical image addition/ subtraction and optical image differentiation, which are implemented by using a sinusoidal grating and a composite grating respectively. Experimental topics cover 4f optical system, Fourier optical filtering in frequency domain, Fourier phase shift theorem and convolution theorem. They are comprehensive experiments in the field of optical information processing.

Experimental Contents

1. Understand the physical principle of optical image addition and subtraction using diffraction grating
2. Understand the principle of optical image differentiation operation
3. Acknowledge Fourier optical filtering
4. Familiarize with the structure and principle of an optical 4f system

Specifications and Part List

Optical rail	1 m	1
Carrier		5
X-translation carrier		4
He-Ne laser w/power supply	1.5 mW@632.8 nm	1 set
Laser tube holder		1
Expander lens	f = 6.2 mm	1
Collimation lens	f = 150 mm	1
Fourier lens	f = 150 mm	2
Lens holder		4
1-D grating	100 lines/mm	1
Composite grating	100 and 102 lines/mm	1
Object plate	+ - and T	2
Kinematic mount		1
White screen		1
Plate holder		2
Instruction manual		1

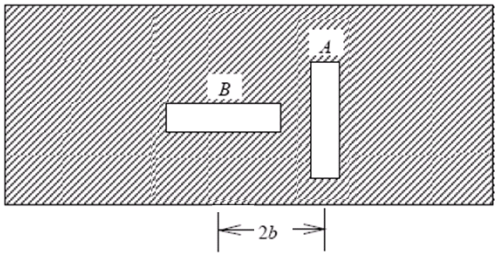
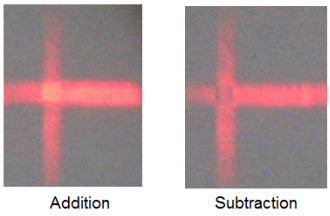
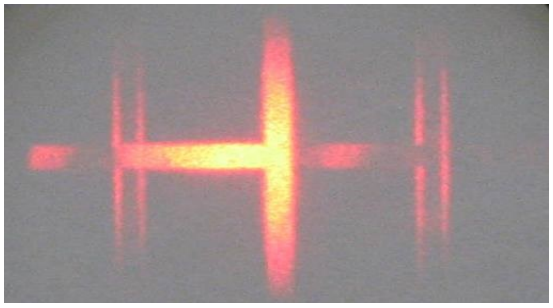


Image Pattern



Experiment Results

Schematic of addition and subtraction operations



Experiment result of 1-D image differentiation

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

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