

LEOI-61

Single-photon Counting Experiment System



- *Easy to operate*
- *Low noise*
- *High sensitivity*
- *Theoretical introduction
presented*

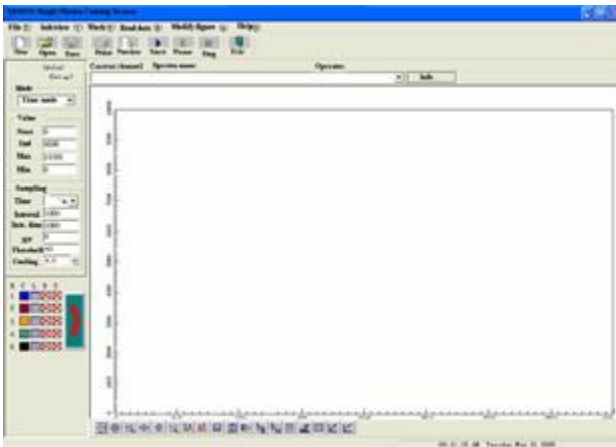
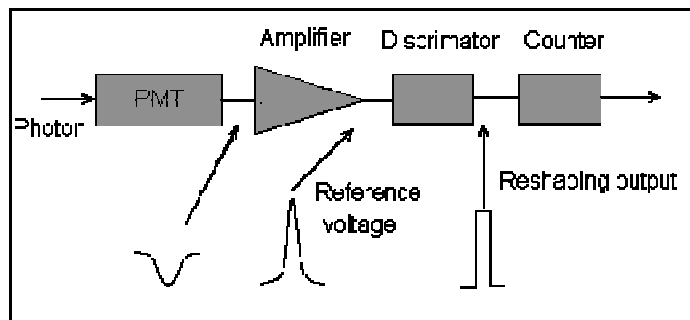
In contrast to conventional photon counters that can only detect the absence of photons, Visible Light Photon Counter (VLPC) has the capability to discriminate photon number states. Based on a reliable PMT sensitivity in the visible spectral range, this photon counting system is able to detect weak optical signals down to the single photon level. It is important in many quantum information processing applications.

Photon counter functions by absorbing photons from the field, converting single photons into electronic information (many thousands of electrons) with high quantum efficiency.

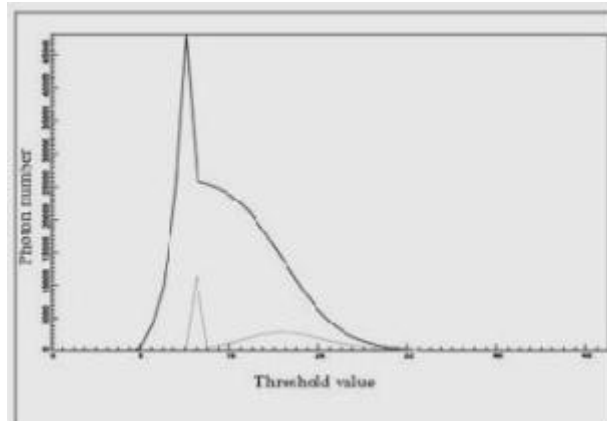
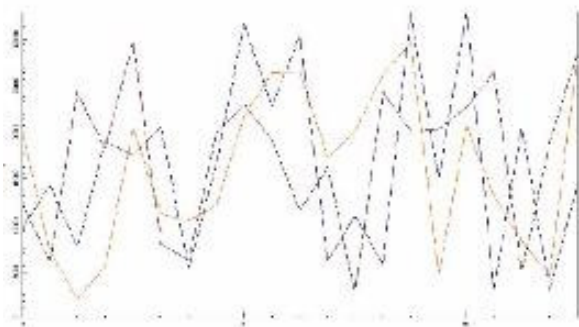
Specifications

Wavelength Range	360-650 nm
Wavelength Repeatability	$\leq 0.2\text{nm}$
Integration Time	0-30 min (1ms/stop, adjustable)
Threshold Voltage	0-2.56V (10 V/stop, adjustable)
Max Count Reading	more than 10^7
Dark Count	less than 30 cps (-20°C)
Relative Aperture	Continuously adjustable from 0 to 2mm
Stray Light	$\leq 10^{-3}$
Resolution	$\pm 0.4\text{nm}$

The design of this system comprises of a low noise, charge-integrating amplifier, a low offset voltage comparator, a pseudorandom counter, etc. The properties make it ideal for efficient photon number detection.



The software is a family of Windows-based applications that control this system, and manage, process and extract information from acquired spectra.



Parts list

Description	Qty
Main frame	1
CR 125 Photomultiplier tube	1
Working power supply	1
Amplifier system	1
Counter card	1
Semiconductor refrigeration system	1
Software driver CD	1