

Positron Lifetime Measurement System

MADE IN JAPAN

Lifetime, Coincidence Doppler Broadening, and AMOC

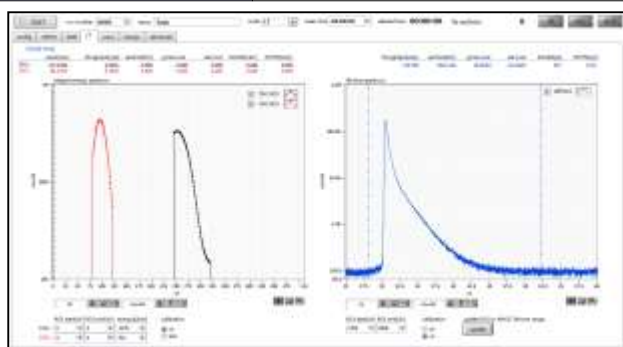
SYSTEM

Positron lifetime measurement is used for the measurement of vacancy-type defect of semiconductor in materials field. This is an all-in-one positron lifetime measurement system with measurement device and power supply. In the lifetime measurement, the lifetime is calculated by using 3GS/s, which is imported by high-speed pulse signal from two BaF₂ scintillators. In the Coincidence Doppler Broadening (CDB), the 2D histogram is made by wave height value of coincidence from two Ge semiconductor detectors. Additionally, these devices can be combine to be measured by AMOC, which is the correlation of lifetime and momentum.



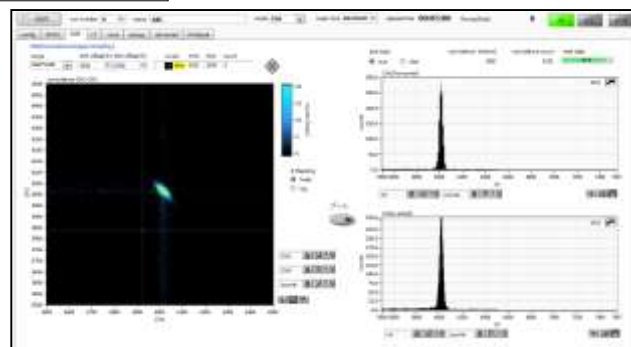
Positron Lifetime Measurement System
(From the left sequentially: 3G ADC, 100M ADC, Preamp power supply, High-voltage power supply)

Measurement Mode	<ul style="list-style-type: none"> ✓ Lifetime ✓ Coincidence Doppler Broadening (CDB) ✓ Age-Momentum Correlation (AMOC)
ADC	Lifetime: 2CH 3GS/s 8-bit, CDB: 2CH, 100MS/s 14-bit
Time Resolution	FWHM 192ps (511keV@ ²² Na, BaF ₂ scintillator) FWHM 160 – 190 ps (Silica)
Energy Resolution	1.23keV (512keV@ ¹⁰⁶ Ru) 1.69keV (1.33MeV@ ⁶⁰ Co)
High Voltage Power Supply	2CH, -4000V for PMT 2CH, +5000V for Ge semiconductor detector *Included Preamp power supply
Communication Interface	Ethernet (TCP/IP)
Accessories	Application Software and Instruction Manual

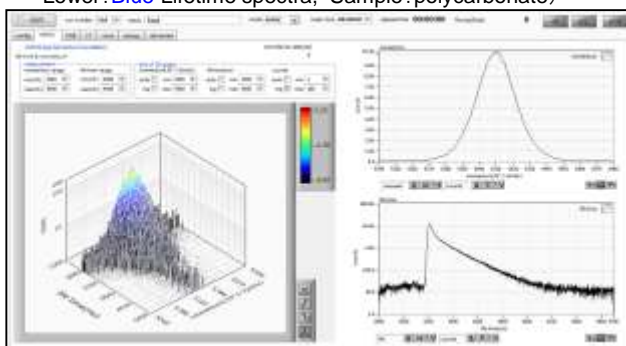


Measurement example: Lifetime mode

(Upper: Black Start 1.274MeV@²²Na, Red Stop 511keV@²²Na
Lower: Blue Lifetime spectra, Sample: polycarbonate)

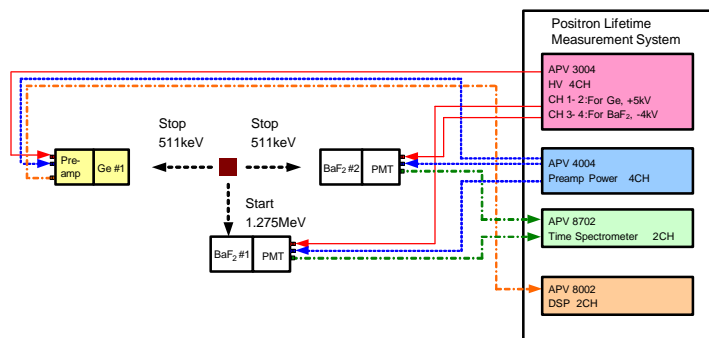


Measurement screen example: CDB mode



Measurement screen example: AMOC mode

(Left: Lifetime – Momentum correlation 3D graph
Right Upper: Momentum spectrum, Right Lower: Lifetime spectrum, Sample: Silica)



Composition example: AMOC mode

*Images is for illustration purpose.
*Please note that contents may change without prior notice.

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