

# Positron Lifetime Measurement System

MADE IN JAPAN

## Lifetime, Coincidence Doppler Broadening, and AMOC

SYSTEM

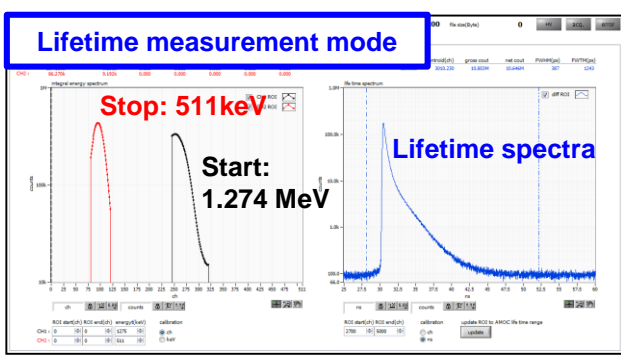
20181101

This is a device which integrates measuring equipment and power supply equipment necessary for positron annihilation method which can analyze molecular level nanoscale space structure. In **lifetime measurement**, high-speed pulse signals from two BaF<sub>2</sub> scintillators are captured by 3 Gsps board to calculate lifetime. In **CDB measurement**, coincidence is taken from two HPGe semiconductor detectors, and a two-dimensional histogram is generated from the crest value. Furthermore, **AMOC measurement** that correlate the lifetime and momentum are also realized by combining these modules.

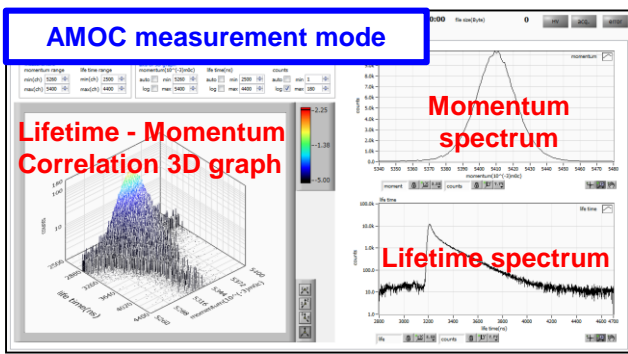
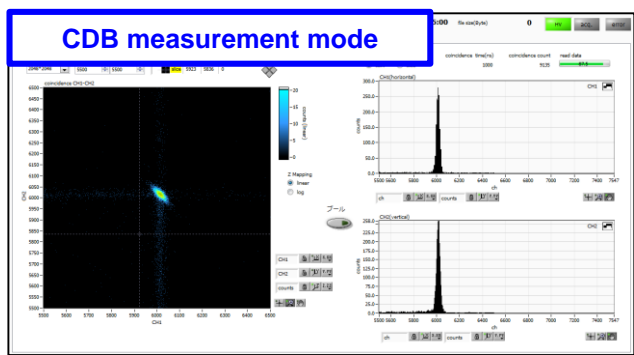
|                                  |   |
|----------------------------------|---|
| <b>Measurement Mode</b>          | <ol style="list-style-type: none"> <li>Lifetime</li> <li>Coincidence Doppler Broadening (CDB)</li> <li>Age-Momentum Correlation (AMOC)</li> </ol> |
| <b>ADC</b>                       | Lifetime: 2 channels, 3Gsps, 8-bit<br>CDB: 2 channels, 100Msps, 14-bit  |
| <b>Time Resolution</b>           | FWHM 192 ps (511 keV @ <sup>22</sup> Na, BaF <sub>2</sub> scintillator)<br>FWHM 160 – 190 ps (Certified standard quartz glass)                    |
| <b>Energy Resolution</b>         | 1.23 keV (512 keV @ <sup>106</sup> Ru)<br>1.69 keV (1.33 MeV @ <sup>60</sup> Co)  |
| <b>High Voltage Power Supply</b> | 2 channels, -4000V for PMT<br>2 channels, +5000V for HPGe semiconductor detector<br>*Included Preamp power supply                                 |
| <b>Communication I/F</b>         | Ethernet (TCP/IP)   |
| <b>Accessories</b>               | Application Software for Data acquisition, Instruction Manual   |



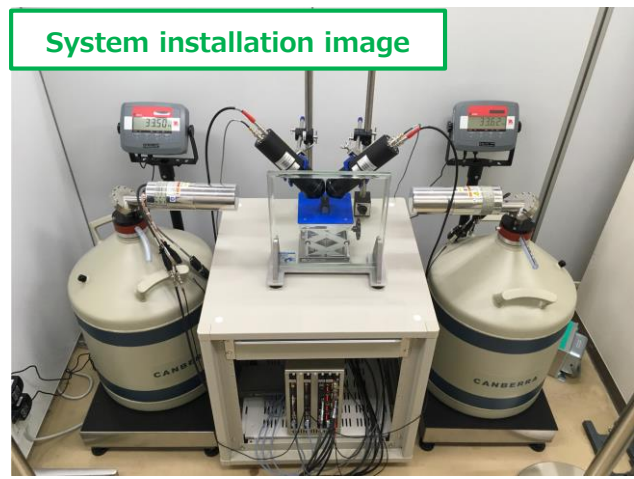
Height: 32 cm, Width: 17 cm, Depth: 40cm



Radiation source: <sup>22</sup>Na, Sample: Polycarbonate



Sample: Silica



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

Website



Manufacture of Radiation and Radioactivity measurement devices

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