

The New Fabrication Method of a Surface Source

A standard surface source is a planar radioactive source material. It is used as a surface source for the calibration of hand-foot cloth monitors and survey meters. We have developed a new method for the fabrication of standard surface sources. Uniform printing density, a broad range of radioactive intensity, high positional resolution and arbitrary shapes could be also realized by the method. The printed sources will be applied for a radioactive logarithmic scale for imaging plate and a radioactive surface source for calibration of radiation measurement instruments.



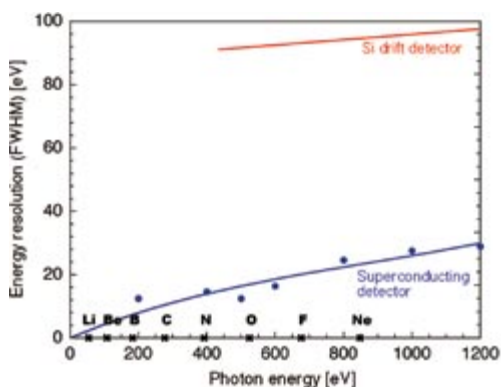
A printed radioactivity log scale.
A broad range of radioactive concentrations can be obtained by setting inks, with different radioactive concentrations, in an inkjet printer and using the adjustment function of printing concentrations for each ink color.

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Superconducting Energy-Dispersive Spectroscopy

Energy-dispersive x-ray spectroscopy is one of the indispensable methods for elemental analysis. Superconducting detectors can outperform the conventional semiconducting detectors in energy resolution and a coverage of x-ray photon energies. However, the smallness of superconducting detectors limits their applications to real analyzing tools. We have found by using spatially-resolved measurement with synchrotron radiation that the detector size can be increased by changing the structure of superconducting electrodes. The finding resulted in the superiority of the superconducting detector to the semiconducting detector as shown in the figure, and thus opens the possibility of real analyzing tools.



Comparison of energy resolution between a Si detector and a superconducting detector for energy-dispersive spectroscopy.

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