

### Principle on selecting the counting windows for double labeled samples

#### *“Triple-window model” - Method with 4 ROIs*

The principle is to select ROIs in the region isotopes are overlapping most. Generally only one window should be selected from above the QPE of the first, lower energy isotope.

ROI 1: From 5 to the peak channel of Isotope1 (about QPE of Isotope1 divided by 2)

ROI 2: From the last channel of ROI 1 +1 to QPE of Isotope1

ROI 3: From the last channel of ROI 2 +1 to QPE of Isotope2

ROI 4: From 5 to QPE of Isotope2

Example: Unquenched H-3 and C-14

ROI 1: 5 – 130

ROI 2: 131 – 300

ROI 3: 301 – 620

ROI 4: 5 – 620 (full window)

#### *“Double-window model” - Method with 3 ROIs:*

As the first, lower energy isotope, is more critical, the principle is to select ROI 2 so that there is cross-over as little as possible to the region of the first isotope. The same principle can be applied to double window model of External Standard method.

ROI 1: From 5 to about the start channel of Isotope2

ROI 2: From the last channel of ROI 1 +1 to QPE of Isotope2

Example: Unquenched H-3 and C-14

ROI 1: 5 – 200

ROI 2: 201 – 620

ROI 3: 5 – 620 (full window)

**Note!** Exact window settings depend on the isotopes and degree of quenching. Optimum window setting can be checked visually from the spectra of the isotopes on similar conditions as used to measure the unknowns.