Sunflower - In-beam gamma-ray spectroscopy at the RIBF

Tuesday 10 September 2013 - Wednesday 11 September 2013

Darmstadtium Conference Center

Scientific Programme

After first experiments with secondary beams produced from 48Ca and 238U

primary beams in 2008 and 2009, a first longer in-beam gamma-ray spectroscopy experimental campaign using a 48Ca primary beam was performed in November/December 2010. In 2011 and 2012, experimental campaigns using 238U, 124Xe, and 70Zn primary beams followed.

Independently, the MINOS (MagIc Numbers Off Stability) project, led by the CEA Saclay, started in 2010 with the aim to develop a liquid hydrogen target capable of vertex position reconstruction by surrounding the target by a Time Projection Chamber (TPC). The MINOS target cell can have a length of up to 150 mm and the vertex reconstruction performance will first be tested with fast beams in 2013.
From 2014, it is planned to couple MINOS to the DALI2 gamma-ray spectrometer and BigRIPS/ZeroDegree.

With MINOS, yield enhancements of up to one order of magnitude are expected compared to solid plastic, beryllium, or carbon targets. In addition, great efforts by the RIKEN Nishina Center's accelerator division have led to maximum achieved primary beam intensities of 415 pnA 48Ca, 100 pnA 70Zn, 27 pnA 124Xe, and 15 pnA 238U at 345 MeV/u. The development of a 78Kr primary is foreseen.

The main objective for this SUNFLOWER mini workshop is therefore the elaboration of experimental proposals/LOI using taking advantage of these primary beam intensities, MINOS and/or thick reaction targets, and the gamma-ray spectrometers DALI2 or GRAPE. Ideally, the proposals will be presented at the 13th NP-PAC meeting, held on December 13-14th, 2013 at the RIKEN Nishina Center.