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The MINOS physics program at the RIBF

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MINOS is a new device composed of a thick hydrogen target and vertex tracker [1]. It has been primarily conceived for the spectroscopy of rare isotopes produced at fragmentation facilities such as the RIKEN Radioactive Isotope Beam Facility. In the near future, MINOS in association with other detectors and spectrometers should contribute to exciting physics programs at the RIBF focusing on nuclei produced by hydrogen-induced secondary knockout reactions. The full detector and its electronics have been finalized and validated at the end of 2013 and is now ready to run.

Among foreseen experiments, a scientific program named SEASTAR dedicated to the study of shell evolution and measurement of new $2+$ state energies in medium-mass unstable nuclei has been initiated at the RIBF. SEASTAR was initiated to exploit the unique opportunities offered by the RIBF and by use of the association of the high-efficiency DALI2 gamma array [2] and MINOS.

The first campaign will be held in May 2014 with the aim to search for $2+$ states of ^{78}Ni and neighboring nuclei.

A brief presentation of the MINOS detection system and main characteristics regarding $(p,2p)$ reactions from in-beam validation at HIMAC will be made. The presentation will focus on the intended physics program at the RIBF and a report on the first SEASTAR campaign foreseen this spring.

[1] A. Obertelli et al., Eur. Phys. J. A 50, 8 (2014).

[2] T. Takeuchi et al., submitted to Nucl. Instr. Meth. Res. A (2014).

Primary author: Mr OBERTELLI, Alexandre (CEA Saclay)

Presenter: Mr OBERTELLI, Alexandre (CEA Saclay)

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