

Minutes of the ISAC Science Forum held on March 29th 2006

Reports on experiments of the past two weeks

Yield measurements: M.Dombsky.

The difficult start up (cyclotron inflector problem, ISAC tuning, ISAC control system commissioning) led to quite a bit of lost time initially.

The goal of the first week of yield measurement was to establish reference measurements of the yields of the High powered Ta target for nominal proton beam profiles (Wide beam as used since a year ago). This was achieved for Na and Li isotopes. However it was observed that the yield for Li isotopes were quite a bit lower in absolute terms than for previous similar targets but were normal for Na isotopes. This is not understood. ^{38m}K beams were set up for E 823 and again yields were quite nominal, but decreased with time.

E823: Branching ratio measurement for non-analog transition in ^{38m}K.....G.Ball

Although only about half of the scheduled shifts were delivered, considerable progress was achieved in determining the branching ratio for 0+ -> 0+ transitions through non analogue states. An upper limit for that transition of < 7 ppm was obtain which translate in a contribution to isospin mixing coulomb correction $\delta c < 0.11\%$ which is at the level of precision of the theoretical estimate by I.Towner.

The experiment used the 8Pi and Sceptar to search for a 1209 keV gamma ray. After optimization of the tape cycling time, the contamination from ^{38g}K was reduced to 16/1 compared to what had been seen from other production targets (100/1 for TiC target ,40/1 for normal Ta targets,20 for CaZO₃ targets). This led to an order of magnitude improvement in background.

Remarks on Operation: Due to the commissioning of new control system software, considerable amount of running was necessary before the experiment could start and most of the stable salt that was put on purpose in the target had been exhausted before careful tuning could be done. Hence the mediocre front end transmission of 50% which had to be contended with. Also the heat load in the 8pi electronic enclosure is now beyond the capacity of its air conditioning unit and quite affected by the outside air temperature.

E1024 ⁴⁰Ca(α,γ)D.Hutcheon

Due to a slip in the schedule for commissioning the ISAC II accelerator, (CNSC license approval delays), this experiment is making use of the offline ion source. Good beam conditions were obtained. Some overlap measurements in the 1Mev/u region were made before going to lower excitation energies but those showed an inconsistency at one of three previously measured resonances. An investigation is underway to understand the source of this discrepancy.

Up coming experiments:

Yield :

A systematic study of yield versus beam profiles at several intensities is programmed with help from the beam dynamic group before ending the cycle for the current high power target.

The proton beam will then be switched to the west target station and TRILIS will be set up to develop a Be beam.

G.Ball has volunteered to work on the safety report for the operating license of ISAC II representing the interest of Tigress. Other volunteers will be co-opted for the EMMA and GPS beamlines (P.Walden did volunteer after the meeting) and of the accelerator team. L.Moritz will be asked to coordinate the writing effort to meet CNSC requirements. Considering the response time of CNSC staff, that effort must be started right away.

There will be follow up meeting on the ISAC II hall organization at the next ISAC facilities meeting Wednesday April 5th at 15:15 in the MOB conference room.

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