

On Recent and Future Nuclear Studies
Using High Resolution Gamma Ray Spectroscopy
at TRIUMF ISAC II

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Recent development of radioactive beams and suitable detector arrays for high resolution gamma ray spectroscopy at TRIUMF, Canada's National Laboratory for Nuclear and Particle Physics, have attracted a lot of interest in proposing new experiments using intense accelerated radioactive beams delivered by the TRIUMF's ISAC II facility. Many of these experiments are focused on exploring nuclei which are situated far from the valley of beta stability on either side of the proton- or the neutron drip lines, and on the path of the *rp*- or *r*-processes, respectively, that are responsible for the creation of the elements in stellar environments.

Several successful Coulomb excitation and transfer reaction experiments using accelerated beams of neutron and/or proton rich Na and Be isotopes, the TRIUMF-ISAC Gamma-Ray Escape Suppressed Spectrometer (TIGRESS), and dedicated ancillary detectors have already been performed [1-4].

In my talk I will focus on the most recent updates of the TRIUMF ISAC II facility, detector arrays, and recent and future experiments using high resolution gamma ray spectroscopy methods. Preliminary results on specific resonance states in ^{21}Na [5] relevant for important region of astrophysics interest and on the halo features and structure of levels in ^{12}Be halo nucleus [3] will be shown.

The TIGRESS collaboration consists of a large group of students, postdoctoral fellows, professors, and scientists from Canadian and international universities and laboratories.

References

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- [3] R. Kanungo *et al.*, to be published, and private communication
- [4] A.M. Hurst *et al.*, submitted to Phys. Lett. B
- [5] D. Jenkins, private communication