Contribution ID: **29**   Type: **Oral Presentation**

Development of the Online Analysis Software for the CRIB Active Target

Wednesday, 20 May 2015 11:00 (25 minutes)

An active target, which acts as both a reaction target and a detector, is one of the promising particle detection systems in nuclear physics experiment. It provides comprehensive physical information such as traces of injected particles and particle discrimination in atomic numbers based on energy-loss information. Our active target is basically a gas-filled time projection chamber developed by CNS in-flight radioactive ion beam separator at low energy (CRIB) in the RIKEN Nishina Center, Japan. As a part of preparatory steps for experiments at CRIB, a software dedicated to online monitoring and event reconstruction of the CRIB active target has been developed as the user-friendly graphical interface in the framework of ROOT. With modification of existing codes that can meet requirements for beta delayed alpha decay measurements, new features have been successfully implemented an evaluated with N-16 radioactive ion beams. We present a detailed description of signal processing and data analysis for the CRIB active target.

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Session Classification: Session 10

Track Classification: Techinical issues