



**TITLE:****Measurement of Proton-Induced Subthreshold Pion Pair Production****SPOKESPERSON:** Atsushi Sakaguchi**SUMMARY OF THE PROPOSAL**

We propose to measure the subthreshold two pion production reaction off nuclear target, the  $A(p, \pi^+\pi^-)X$  reaction, with the 416 MeV proton beam at the WSS beam course of the RCNP Ring Cyclotron facility. The magnitude of the reaction cross section and the  $\pi^+\pi^-$  invariant mass distribution will provide the information on the strength of the  $\pi^+\pi^-$  amplitude in nuclei at the low invariant mass region. The information has a close relation with the modification of the spectral function of the  $\sigma$  meson or  $f_0(600)$  resonance due to a partial restoration of the chiral symmetry in nuclei argued by the TRIUMF/CHAOS collaboration.

Though the subthreshold reaction cross section is expected to be tiny at the beam energy, the large acceptance Osho spectrometer system at the WSS beam course and a dedicated trigger system will make the measurement possible within a reasonable period of beamtime. In this proposal, the current status of the detector system, the trigger development and a pilot experiment is presented. An update plan of the DAQ and the trigger systems for the proposed experiment is described.