



国立研究開発法人理化学研究所 仁科加速器科学研究センター
第300回 RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 300th RIBF Nuclear Physics Seminar

Measurement of spectral pion ratio in Sn+Sn collisions for the constraint of density dependent nuclear symmetry energy

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Neutron star is believed to be created as a remnant of super nova explosion. In order to determine a thermodynamical character of outer core of neutron star through terrestrial experiments, we have performed a series of measurements using RIKEN Radio Isotope Beam Factory (RIBF). Various central collisions between neutron-rich tin nucleus and normal tin nucleus were measured. The density achieved by the collisions nearly corresponds to the one for the outer core of neutron star: $\rho \sim 2 \times \rho_0$. Both positive and negative pions emitted from the high density nuclear matter were detected by a newly developed large time projection chamber which can provide 3-dimensional image of their tracks. Based on the comparison of spectral charged pion ratio with one of the transport models, we deduce the slope of the symmetry energy to be $42 < L < 117$ MeV, which is consistent with the result given by the recent measurement of the neutron skin thickness of Pb-208.

Sep. 28th (Tue.) 2021 13:30~
via Zoom meeting system

* The talk will be given in English language.

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