



ID de Contribution: 26

Type: **Regular talk (remote)**

## Constraints on the symmetry energy at supra-saturation density from Pion Spectral Ratios

*mercredi 24 novembre 2021 15:25 (25 minutes)*

Pion spectral ratios and double ratios are measured for neutron rich  $^{132}\text{Sn}+^{124}\text{Sn}$  and neutron deficient  $^{108}\text{Sn}+^{112}\text{Sn}$  collisions. Both  $\pi^-/\pi^+$  single spectral ratios for the two systems and double ratios obtained by combining both systems can be described by a dcQMD calculations. These comparisons provide a correlated constraint on  $L$  and on the neutron-proton effect mass difference. This represents a step forward towards constraining the symmetry energy at supra-saturation densities with pion production. Future steps to better constrain the symmetry energy at supra-saturation densities will be discussed.

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**Classification de Session:** Isospin Effects and EoS in nuclear reactions

**Classification de thématique:** Isospin Effects and EoS in nuclear reactions: Constraints on the symmetry energy supra-saturation density from Pion Spectral Ratios