Contribution ID: **27** Type: **Oral**

Backward nucleon production by heavy baryonic resonances in proton-nucleus collisions

Tuesday, 24 December 2019 17:35 (20 minutes)

The production of backward nucleons, $N(180^\circ)$, at 180° in the nuclear target rest frame in proton-nucleus (p˜+˜A) collisions is studied. The backward nucleons appearing outside of the kinematically allowed range of proton-nucleon (p˜+˜N) reactions are shown to be due to secondary reactions of heavy baryonic resonances produced inside the nucleus. Baryonic resonances R created in primary p˜+˜N reactions can change their masses and momenta due to successive collisions $R+N \to R+N$ with other nuclear nucleons. Two distinct mechanisms and kinematic restrictions are studied: the reaction $R+N \to N(180^\circ)+N$ and the resonance decay $R \to N(180^\circ)+\pi$. Simulations of p˜+˜A collisions using the Ultra-relativistic Quantum Molecular Dynamics model support these mechanisms and are consistent with available data on proton backward production.

Primary author: PANOVA, Oleksandra (Taras Shevchenko National University of Kyiv)

Presenter: PANOVA, Oleksandra (Taras Shevchenko National University of Kyiv)

Session Classification: Physics of Nuclei and Elementary Particles

Track Classification: Physics of Nuclei and Elementary Particles