Contribution ID: **236** Type: **Plenary**

Fully Coherent Energy Loss: from collider to cosmic ray energies

Tuesday 10 January 2023 08:30 (35 minutes)

In high-energy proton-nucleus (pA) collisions, an incoming energetic parton crosses the target nucleus and suffers medium-induced, fully coherent gluon radiation. I will briefly review the theoretical status of this effect, and present the phenomenological consequences of the corresponding fully coherent energy loss (FCEL) on hadron production in pA collisions at the LHC, and on the atmospheric neutrino fluxes induced by semileptonic decays of hadrons produced in the collisions of cosmic rays with light nuclei of the atmosphere.

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Session Classification: Plenary session Tuesday Morning 1