Contribution ID: **42** Type: **not specified**

The role of the Quantum Yang Baxter Equations in particle Physics

Thursday, 5 March 2026 17:15 (15 minutes)

We analyze the connection between the Nambu-Goldstone theorem and the Quantum Yang Baxter Equations (QYBE), demonstrating in this way that the problem of counting and dispersion relation disappears when we impose constraints coming from the QYBE inside the dynamics of the Nambu-Goldstone bosons. Subsequently, we show that the the Hawking radiation is a mechanism of spontaneous symmetry breaking where the order parameter comes out to be the particle number operator, which vanishes before the formation of the Black Hole and is different from zero after its formation. From this perspective we then analyze some interesting aspects about the Black Hole evaporation process.
Finally, we extend the symmetry arguments in order to explore the neutrino mass problem, finding then certain constraints between the mixing angles as well as between the mass eigenvalues. The analysis suggests a normal ordering and the predicted values are inside the experimental observation ranges.

Presenter: ARRAUT, Ivan