Contribution ID: **240** Type: **Talk**

Entanglement generation and distribution in QED processes

Tuesday 24 June 2025 18:00 (15 minutes)

I will report on recent findings about the generation and distribution of entanglement in Quantum Electrodynamics (QED) scattering processes. The analysis takes advantage of the complete complementarity relations, which allow for a complete characterization of both local and nonlocal properties of these fundamental quantum processes. Remarkably, it is found that maximal entanglement is conserved in scatterings involving fermions only. References 1. M. Blasone, G. Lambiase and B. Micciola, "Entanglement distribution in Bhabha scattering with entangled spectator particle", Phys. Rev. D 109, (2024). 2. M. Blasone, S. De Siena, G. Lambiase, C. Matrella and B. Micciola, "Complete complementarity relations in tree level QED processes", Phys. Rev. D 111 (2025). 3. M. Blasone, S. De Siena, G. Lambiase, C. Matrella and B. Micciola, "Entanglement dynamics in QED processes", Chaos Solitons Fractals 195 (2025).

Author: MICCIOLA, Bruno (Università degli Studi di Salerno)

Presenter: MICCIOLA, Bruno (Università degli Studi di Salerno)

Session Classification: Tuesday Parallel Session C