



Contribution ID: 574

Type: **Plenary talk**

On the Quantum Nature of the Coulombic Interaction

Friday, 12 July 2024 10:30 (30 minutes)

The interface between Quantum Information and Quantum Field Theory –especially Quantum Gravity – is emerging as a forefront area of fundamental physics. But there is some tension between the way the basic concepts are commonly understood by the two communities. In particular, are the Coulombic modes’ of the gravitational field sourced by quantum matter quantum mechanical? They are not registered in the usual Hilbert spaces H_{grav} (and H_{ph}) of gravitons (and photons) that know only about the radiative modes’. Will the proposed experiments directly test the quantum nature of the radiative aspects’ or Coulombic aspects’? The talk will examine such elementary yet fundamental issues by drawing on an exactly soluble, non-perturbative quantum gravity model that is especially well-suited for this purpose.

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Session Classification: Friday plenary session