



Contribution ID: 202

Type: Oral presentation

## Coupling Yang–Mills with Causal Dynamical Triangulations

*Tuesday, July 27, 2021 1:00 PM (15 minutes)*

In this talk I examine the algorithmic problem of minimal coupling gauge fields of the Yang–Mills type to Quantum Gravity in the approach known as Causal Dynamical Triangulations (CDT) as a step towards studying, ultimately, systems of gravity coupled with bosonic and fermionic matter. I first describe the algorithm for general dimensions and gauge groups and then focus on the results obtained from simulations of 2d CDT coupled to Yang–Mills fields with  $U(1)$  and  $SU(2)$  gauge groups, where we studied both observables related to gravity and gauge fields, and compared them with analogous simulations in the static flat case.

**Primary authors:** CLEMENTE, Giuseppe (Radboud University, IMAPP); D'ELIA, Massimo (University of Pisa); ROTTOLI, Federico (SISSA (trieste))

**Co-author:** CANDIDO, Alessandro (University of Milan)

**Presenter:** CLEMENTE, Giuseppe (Radboud University, IMAPP)

**Session Classification:** Theoretical developments and applications beyond particle physics

**Track Classification:** Theoretical developments and applications beyond particle physics