

Séminaire général de physique

Quantum Gravity: Where are we?

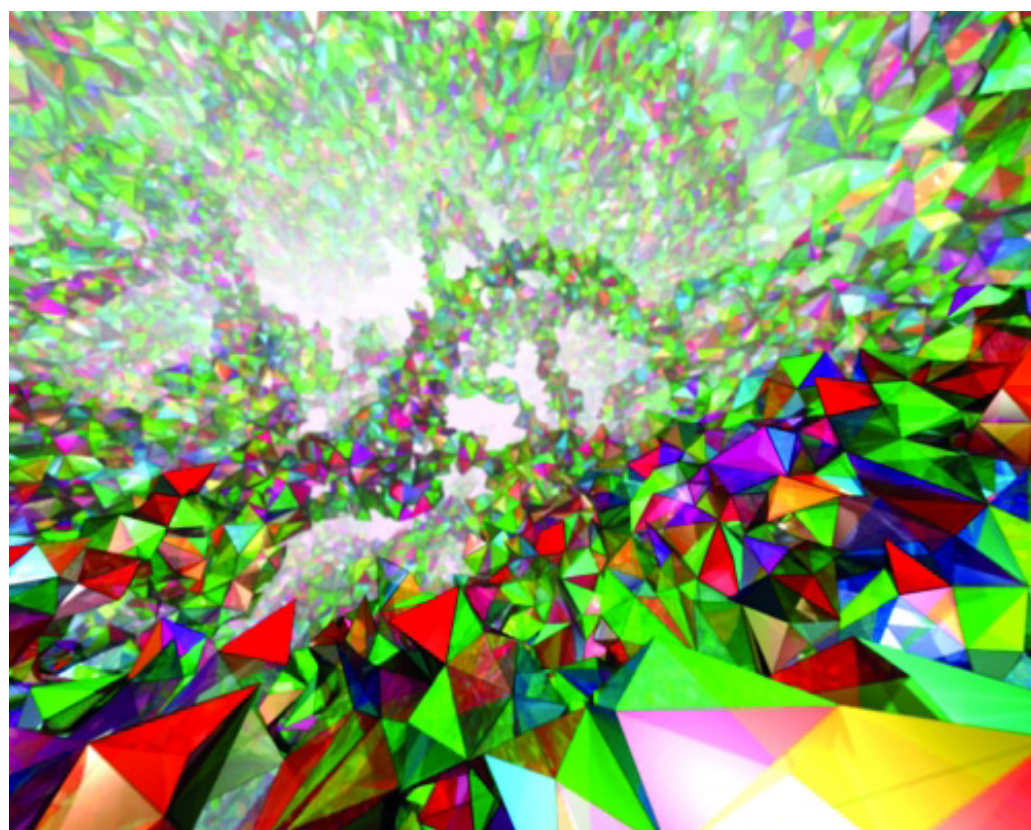
Carlo Rovelli

(Centre de Physique Théorique de Luminy, Marseille)

Amphi PG de Gennes, Vendredi 15 juin 2018, 10h
(café-croissants à partir de 9h40)

I discuss the present state of the research in quantum gravity, the problem of understanding the quantum properties of spacetime.

I discuss the conceptual and technical issues raised by doing physics in the absence of conventional space and time, but also a number of recent important empirical results relevant for this problem. Among these: astrophysical tests of Lorentz invariance at high energy, gravitational waves, absence of supersymmetry at LHC, quantum entanglement via Newtonian interaction, direct observation of black holes with the event horizon telescope. I illustrate some recent ideas on the possibility of direct observation of quantum gravitational phenomena from black-hole physics.



Artist view of the short-scale structure of space-time