

**Institut Henri Poincaré**  
11 rue Pierre et Marie Curie, 75231 Paris cedex 05  
**String Theory in Greater Paris**

**Rencontres Théoriciennes**  
**“Supergravité, théorie des cordes et théorie M”**

***Jeudi 4 Mars 2021, 15:00***

**Ana-Maria Raclariu**

*Perimeter institute*

**Celestial amplitudes from UV to IR**

*Celestial amplitudes compute 4D scattering matrices in a basis of boost, rather than conventional energy-momentum eigenstates. In this talk I will show how UV and IR properties of quantum field theory and quantum gravity translate into constraints on the analytic structure of celestial amplitudes. We will see, for example, that the soft UV behavior of quantum gravity amplitudes implies that four-point celestial amplitudes are meromorphic functions in the complex boost weight plane with poles at negative integers. Moreover, the residues of these poles are related to couplings in the low-energy effective field theory. Finally, I will show that soft-hard factorization in momentum space maps to factorization of celestial amplitudes and comment on some implications of these results.*

**Institut Henri Poincaré, salle 314, 3<sup>ème</sup> étage**

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<http://string.lpthe.jussieu.fr>  
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