ID de Contribution: **75** Type: **Non spécifié**

Estimates for rough wave maps on the Einstein cylinder via Peter—Weyl theory

lundi 25 mars 2024 09:30 (1 heure)

Nonlinear wave equations of wave maps type are typically expected to be well-posed for initial data just above scaling critical regularity. For wave maps on Minkowski space, this is by now well-understood as a consequence of works of Klainerman—Machedon, Tataru, Tao, and others, and effectively relies on sharp null form estimates which exploit the special "null"structure of the nonlinearities. In Fourier space, these estimates capture cancellations between parallel propagating waves. I will introduce a new approach to obtain a wide range of analogous estimates on the Einstein cylinder, where traditional Fourier theory is unavailable, using instead the Lie group structure of SU(2), an emergent periodicity of the conformal wave equation on the Einstein cylinder, and Peter–Weyl theory. The estimates we obtain hold for a slightly different set of exponents than in flat space, including edge cases which are forbidden in flat space, with an arbitrarily small loss which we trace down to the non-commutativity of SU(2). Time permitting, I will outline how the estimates may be used to show almost optimal well-posedness of wave maps equations on the Einstein cylinder.

Orateur: TAUJANSKAS, Grigalius (University of Cambridge)