

SPEAKER:

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TITLE:

High frequency limit in general relativity

ABSTRACT:

It is known in the physics literature that "high-frequency weak limits" of solutions to the Einstein vacuum equations are not necessarily vacuum solutions, but may have a non-trivial stress-energy-momentum tensor, which can be viewed physically as "effective matter fields" arising from back-reaction of high-frequency gravitational waves. Burnett conjectured nonetheless that any such limit is isometric to a solution to the Einstein-massless Vlasov system; and conversely that any solution to the Einstein-massless Vlasov system arises as such limit. We discuss some recent progress on Burnett's conjecture, as well as an application of it. This talk is based on joint works with Huneau, and with Rodnianski.