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. We prove that Burnett’s conjecture is true under a symmetry assumption and a gauge condition. (Received September 03, 2019)