



Events

[Current Events](#)[Lectures](#)[Events Archive](#)

Special Guest Lectures

Falloff of the Weyl Scalars in Numerical Relativity Binary Black Hole Spacetimes**Ian Hinder, Albert Einstein Institute, Germany**Johnston Hall 338
November 03, 2011 - 02:00 pm**Abstract:**

The extraction of gravitational waves from numerical relativity (NR) simulations usually relies crucially on the computation of the Weyl scalar Ψ_4 . Ψ_4 can be interpreted as gravitational radiation in part due to the fact that of all the Weyl curvature scalars Ψ_0 to Ψ_4 , Ψ_4 is the only one that has a nonzero flux at infinity due to its $1/r$ falloff. This is a result of the "peeling theorem", according to which the remaining scalars fall off faster than $1/r$ assuming certain conditions are met. There have recently been questions concerning the extent to which these conditions are met when the Weyl scalars are computed in compact binary NR simulations. We verify that, for a binary black hole simulation, the Weyl scalars obey the peeling theorem to within numerical error.

Speaker's Bio:

Ian Hinder is a senior group member of the numerical relativity group at the Albert Einstein Institute (Max-Planck-Institute) in Germany. He is an expert in binary black hole simulations, automated code generation, as well as formulations, well-posedness and numerical stability for finite difference approximations of the Einstein equations.

