1023-83-985   **Lee Lindblom*** (`lindblom@tapir.caltech.edu`), Theoretical Astrophysics, Caltech 130-33, Pasadena, CA 91125. *Generalized Harmonic Evolutions of Binary Black Hole Spacetimes.*

This talk will describe the generalized harmonic representation of general relativity, and its recent use in numerical simulations of binary black hole spacetimes. This general form of Einstein's equation is manifestly hyperbolic, and can be modified in a simple way that gives it excellent constraint damping properties. Several recent developments useful for numerical simulations will be discussed, including constraint preserving and physical boundary conditions, the dual-coordinate frame method, and the use of feedback control systems to adjust black hole excision boundaries. The groundbreaking binary black hole evolutions of Pretorius using the generalized harmonic system will be discussed, along with the latest simulations using these methods. (Received September 24, 2006)