

Abstract Submitted  
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**Numerical Relativity and the Bondi-Metzner-Sachs Group**<sup>1</sup> JEF-FREY WINICOUR, University of Pittsburgh — There are interesting phenomena associated with the Bondi-Metzner-Sachs (BMS) group that deserve numerical exploration. The BMS group, which is the asymptotic symmetry group of an isolated gravitational system, extends the Poincare group by the addition of an infinite set of supertranslations parameterized by a function on the sphere  $\alpha(\theta, \phi)$ . The  $\ell = 0$  and  $\ell = 1$  spherical harmonics invariantly pick out the time and space translations, which leads to an unambiguous definition of energy and momentum. However, a Poincare subgroup cannot be invariantly defined, which leads to a supertranslation ambiguity in the definition of angular momentum. This opens the possibility of a purely general relativistic mechanism for angular momentum loss. The supertranslations are also associated with the gravitational memory effect. I will discuss these problems which are ripe for the numerical simulation of high spin black hole binaries.

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Jeffrey Winicour  
Univ of Pittsburgh

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