



SHORT TALKS

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A Numerical Approach to General Relativity

Abstract

The Einstein Field Equations (EFE's) are highly nonlinear, coupled, partial differential equations that describe the relation between the geometry of a region of spacetime and its matter content. A severe complication is that, with the exception of a few idealised cases characterised by high degrees of symmetry, the EFE's simply cannot be obtained analytically; we need a computer to do the heavy lifting for us. That being said, computers (for better or worse) lack a sense of humour; they do exactly what you tell them, as you tell them. Therefore, in order to find solutions to realistic (asymmetric) spacetimes, we need to be able to somehow prescribe the right numerical recipe to the machine. In this talk we shall discuss the more widely used such recipe: the 3+1 decomposition of the EFE's.