1126-83-32   **Hubert L Bray*** (`bray@math.duke.edu`), Mathematics Dept., Box 90320, Durham, NC 27708.
An Elliptic Theory of Gravity between Special and General Relativity.

We'll describe a new theory of gravity which is 2/3 of the way from special relativity to general relativity in the sense that it requires 4 functions of t,x,y,z to describe the spacetime metric instead of 6. Flatly foliated relativity is identical to general relativity in spherical symmetry (outside black holes, assuming positive energy density) and still includes gravity, black holes, and the big bang. While the action is the same as general relativity, complete with matter fields, flatly foliated relativity requires spacetime to be foliated by flat, 3 dimensional Euclidean spaces. This extra rigidity prevents gravitational waves, simplifying the theory in some important ways. In particular, the Einstein equation is replaced by an elliptic system of equations on each flat slice, making this theory an interesting stepping stone for understanding general relativity better. (Received December 12, 2016)