1021-83-173 **Marcus A. Khuri***, Department of Mathematics, Stony Brook University, Stony Brook, NY 11794. *On the Penrose Inequality of General Relativity.*

The cosmic censorship conjecture roughly states that singularities in the evolution of spacetime are always hidden from the outside world by event horizons. As a test for this conjecture Penrose proposed the inequality $M \geq \sqrt{A/16\pi}$, relating the total ADM mass M of a spacetime to the area A of an event horizon. For time symmetric initial data sets of Einstein's equations this inequality has been confirmed, independently by Huisken and Ilmanen (for one black hole) and by Bray (for multiple black holes). The purpose of this talk is to show how the time symmetric proofs can be generalized to apply to general initial data, assuming existence for a canonical degenerate elliptic system of equations. This is joint work with Hubert Bray. (Received September 04, 2006)