Quasi-local Mass and the Static Extension Problem in General Relativity

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There are several competing definitions of quasi-local mass in General Relativity. The first part of this talk will provide an expository review of this topic. The second part will focus on properties of a specific mass, namely, a very promising and natural candidate proposed by R. Bartnik which seeks to localize the total or ADM mass. Fundamental to understanding Bartnik's construction is an analysis of the moduli space of solutions to the static vacuum Einstein equations. Under appropriate assumptions, this leads to an existence result for a canonical geometric boundary value problem associated with these equations. The implications for Bartnik's quasi-local mass will be discussed.

The lecture will take place in Thackeray 704 at 4:00pm.
Refreshments will start at 3:30pm.