Gauge Conditions and Black hole Stability KARTIK PRABHU, University of Chicago — Hollands and Wald showed that dynamic stability of a black hole is equivalent to the positivity of canonical energy on a space of linearised perturbations satisfying certain boundary conditions and gauge conditions. The boundary/gauge conditions are naturally formulated on the space of initial data for the perturbations in terms of orthogonality to gauge transformations. These perturbations can be uniquely specified in terms of transverse-traceless tensors. Using these transverse-traceless data, positivity of kinetic energy for perturbations can be proven.

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