1035-53-1383 **Steven G Harris*** (`harrissg@slu.edu`), Department of Mathematics, Saint Louis University, 220 N Grand Blvd., Saint Louis, MO 63103. *Causal boundary of flat Lorentzian manifolds and other spacetimes, given as quotient spaces.* Preliminary report.

This talk will examine the Future Causal Boundary on some simple classes of spacetimes, such as flat spacetimes derived as a quotient by a group action on either Minkowski space or a portion of Minkowski space that has a spacelike future boundary.

Using the Future Chronological Topology for the Future Causal Boundary provides advantages, including a quasi-compactness result for general spacetimes: Any sequence of points which has a point in their common past, has a convergent subsequence. For a product spacetime—$M \times R$, M Riemannian—this yields a boundary construction on M that compactifies it.

One of the more interesting questions to examine is whether the future-completion of a spacetime is Hausdorff in the Future Chronological Topology (failure to be Hausdorff speaks to subtle effects in the physics of the spacetime). In particular, if the future-completion of a product spacetime $M \times R$ is Hausdorff, then the Future Causal Boundary follows a very simple construction on M. How this Hausdorff question can be approached in cases of quotient spacetimes will form a portion of this talk. (Received September 19, 2007)