1044-54-135 **Robert W. Heath*** (rwheath@pitt.edu), 1223 Whisper Ridge Rd., Auburn, AL 36830, and **Thomas J. Poerio**. *Topological Algebraic Structure on R with The Density Topology.* Preliminary report.

The density of a subset E of R at a point x is defined to be the limit, as h goes to 0, of $\frac{m_1(E\cap(x-h,x+h))}{2h}$. In the density topology a set is open if the density of the set is 1 at each of its points. Tall [Pacific Journal, 1976] showed that a subset of R is connected in the density topology iff it is connected in the open interval topology. We use Hugo Steinhaus's theorem (Fundamenta, 1920] to show that neither $\{R,+\}$ nor $\{R^+,x\}$ can be a cancellative topological semigroup in the density topology. Further we show that there can be no cancellative topological semigroup on R with the density topology. (Received August 29, 2008)