1112-51-7 **Joel Clarke Gibbons*** (jgibbons@chicagobooth.edu), P.O. Box 63, Saint Joseph, MI 49085, and **Yusheng Luo** (yusheng@nus.edu). *Colorings of the n-sphere and Inversive Geometry.*

This paper shows that in dimensions n > = 2, for any partition of the set of points in the standard unit n-sphere Pn in R(n+1) into (n + 3) or more nonempty sets, there exists a hyperplane in R(n+1) that intersects at least (n+2) of these sets. This result is used to prove a result in inversive geometry. A mapping T : S2 -> Sn, for n>= 2, not assumed continuous or even measurable, is called weakly circle-preserving if the image of any circle is contained in some circle in the range space Sn. If such a map T has a range T(S2) in circular general position, meaning that any circle in Sn misses at least two points of T(S2), then T must be a Möbius transformation of S2. (Received March 24, 2015)