1106-VO-1241 **Sean Eastman*** (sean.eastman@armstrong.edu). *The volume of the spatial region corresponding to $n \times n$ correlation matrices.*

Given a symmetric, square matrix with 1's on the diagonal and the remaining entries chosen randomly from $(-1, 1)$, the probability that a valid correlation matrix is constructed decreases dramatically as n increases. For 3×3 matrices, the subset of the unit cube consisting of valid correlation matrices can be visualized geometrically as a peculiar shape with volume $\pi^2/2$. In this talk, we utilize a spherical form of the Cholesky decomposition to derive a general formula for volumes (and thus probabilities) of correlation matrices in higher dimensions. (Received September 11, 2014)