1056-62-2020 **Raymond E. Molzon*** (remolzon@mtu.edu), 1400 Townsend Dr., Mathematical Sciences, Houghton, MI 49931. *The minimum measure of concordance in a multivariate version of Spearman's rank correlation.* Preliminary report.

Spearman's rank correlation is an asymptotically unbiased estimator of the grade correlation ρ_S between two random variables X and Y, and ρ_S is an instance of a bivariate measure of concordance. It is known that ρ_S attains its minimum value of -1 when Y is almost surely a strictly decreasing function of X. In a multivariate setting, where ρ_S is a measure of concordance between k random variables $X_1, \ldots, X_k$, we use geometric reasoning about the grade correlation to show that the minimal value of ρ_S is $-\frac{1}{k-1}$ and consider an example distribution where this minimal value is attained. (Received September 22, 2009)