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Ryan W Matzke* (matzk053@umn.edu), **Dmitriy Bilyk** and **Feng Dai**. *Stolarsky Principle and Energy Optimization on the Sphere*.

The classical Stolarsky Invariance Principle connects the L^2 discrepancy of a finite point set on the sphere to the pairwise sum of Euclidean distances between the points. By extending this result to arbitrary measures and arbitrary notions of discrepancy, we can approach an array of problems of energy optimization from the stand point of discrepancy theory. In particular, we can determine the maximum sum of geodesic distances between points on the sphere, and the arrangements that produce it. (Received July 11, 2017)