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Gabor A Toth* (gtoth@camden.rutgers.edu), 411 North 5th Street, Camden, NJ 08102. *A measure of symmetry for convex sets and its application to moduli for minimal immersions of spheres.* Preliminary report.

Asymmetry of a compact convex body $\mathcal{L} \subset \mathbf{R}^n$ viewed from an interior point \mathcal{O} can be measured by considering how far \mathcal{L} is from its inscribed simplices that contain \mathcal{O} . This leads to a sequence of measures of symmetry $\{\sigma_k(\mathcal{L}, \mathcal{O})\}_{k \geq 1}$ in the sense of Grünbaum. This sequence of measures has interesting arithmetic properties. The interior of \mathcal{L} naturally splits into regular and singular sets, where the singular set consist of points with largest possible $\sigma_n(\mathcal{L}, \mathcal{O})$. In general, to calculate the regular and singular sets is difficult. In this talk we give a variety of methods that facilitate this calculation. The methods are illustrated by several examples. The original motivation for introducing these measures is to describe the geometry of the DoCarmo-Wallach moduli spaces of minimal immersions of spheres. We use the DeTurck-Ziller minimal orbit method for $SU(2)$ to calculate these measures on the $SU(2)$ -equivariant moduli of S^3 into spheres. (Received August 11, 2010)