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Richard Mikula* (rmikula@lhup.edu), 401 W. 4th Street, Lock Haven, PA 17745. *Prescribing Gauss-Kronecker curvature, and the Weingarten curvature problem.*

We consider the problem of prescribing Gauss-Kronecker curvature in Euclidean space and in space forms. In particular, by a degree theory argument for a fully nonlinear Monge-Ampere elliptic PDE, we prove the existence of a closed convex hypersurface in 3-dimensional Euclidean space which has its Gauss-Kronecker curvature equal to F , a prescribed positive function, which is invariant under a fixed-point free subgroup G of the orthogonal group $O(3)$, requiring that F satisfy natural growth assumptions near the origin and at infinity. Some higher dimensional results are also discussed, as well as results in the setting of space forms. (Received April 05, 2010)