1021-35-8 **Richard Mikula*** (richmikula87@yahoo.com), 6329 Ditman Street, Philadelphia, PA 19135.
The Weingarten Curvature Problem: Prescribing Gauss-Kronecker on Group Invariant Convex Hypersurfaces.

We consider the problem of the existence of a hypersurface in $\mathbb{R}^{n+1}$ with prescribed Gauss-Kronecker curvature on radial directions: Given a positive G-invariant function F, defined on $\mathbb{R}^{n+1}\setminus\{0\}$, where $G \subset O(n+1)$ is fixed point free subgroup, we examine the existence of a hypersurface M, star-shaped about the origin, satisfying that its Gauss-Kronecker curvature is given by $F|_M$.

This problem may be viewed in the setting of second order fully nonlinear elliptic partial differential equations, in particular it is of Monge-Ampere type. We may use a topological degree theory argument to solve this problem under certain assumptions on F, which are geometrically natural, and generaliztions of the case when F is bounded between two constants. In particular, we require that $\limsup_{X\to 0} F(X)|X|^n < 1$ and $\liminf_{X\to\infty} F(X)|X|^n > 1$. In three dimensions we obtain an optimal result, and we also have some partial results in higher dimensions. (Received April 13, 2006)