

We consider the problem : given a positive definite matrix A , determine the diagonal matrix D , $D \geq A$, which minimizes $\det(D)$. Equivalently, given an ellipsoid \mathcal{A} , determine the ellipsoid \mathcal{D} of the largest volume, contained in \mathcal{A} , with axes parallel to the coordinate axes. Then we discuss the connections between this problem, John's theorem, polarization constants, and the plank problem.

This talk is based on my joint work with YJ Leung, Wenbo Li, and the expository articles of Keith Ball and others.