

Why Ellipsoid Constraints, Ellipsoid Clusters, and Riemannian Space-Time:
Dvoretzky's Theorem Revisited

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Abstract

In many practical applications, we encounter ellipsoid constraints, ellipsoid-shaped clusters, etc. A usual justification for this ellipsoid shape comes from the fact that many real-life quantities are normally distributed,

and for a multi-variate normal distribution, a natural confidence set (containing the vast majority of the objects) is an ellipsoid. However, ellipsoids appear more frequently than normal distributions (which occur in about half of the cases). In this talk, we provide a new justification for ellipsoids based on a known mathematical result --Dvoretzky's Theorem.

Keywords: ellipsoids; constraints; clusters; tensors; space-time physics;
Dvoretzky's theorem