Subject: determining the volume of a fitted ellipsoid that sticks out the sides of a polyhedron
Posted by Ayla P on Mon, 01 Oct 2012 16:51:43 GMT
View Forum Message <> Reply to Message

Hi all,

Here's the basic outline of my problem:

I want to know how different a given polyhedron is in its shape from an ellipsoid of the same volume. To do this, I've started by fitting a polyhedron to my data, then fit an ellipsoid to the polyhedron, and finally re-scaled the fitted ellipsoid to have the same volume as the polyhedron. Now, I want to determine the volume of the ellipsoid that is "sticking out" from the sides of the polyhedron. Hopefully this makes sense...if not, maybe thinking of a 2D diamond surrounded by a circle will help. I'm looking to determine the volume of the curved areas that stick out from the edges of the diamond (except, in reality, I am using a more complex polyhedron and an ellipsoid).

This is where I am stuck. I am thinking there might be some way to use the intersect function in idl to find the surfaces where the polyhedron and the ellipsoid intersect, but I'm not sure how to then get at the remaining volume outside the polyhedron but still inside the ellipsoid. If you have any thoughts on how I might approach the problem, i'd appreciate your insights!

Thanks!

Ayla