

Meeting: 1001, Evanston, Illinois, SS 10A, Special Session on Differential Geometry

1001-53-238 **Thomas E Cecil, Quo-Shin Chi and Gary R Jensen*** (gary@math.wustl.edu), Math Dept,
Campus Box 1146, Washington University, St. Louis, MO 63130. *Dupin hypersurfaces with four
principal curvatures*. Preliminary report.

A conformal transformation of space takes a Dupin hypersurface to a Dupin hypersurface. In particular, stereographic projection of an isoparametric hypersurface with four principal curvatures in a sphere is a Dupin hypersurface with four principal curvatures in Euclidean space. For these Dupin hypersurfaces the cross ratio of the principal curvatures (called the Lie curvature) is constant. Are there other Dupin hypersurfaces with four principal curvatures and constant Lie curvature? R. Miyaoka has a partial answer to this question for the case when the hypersurface is compact. Cecil and Jensen answered the question for the case when all four principal curvatures have multiplicity one. Here we answer the question for the case when the Lie curvature is -1 , one pair of multiplicities is $(1, 1)$ and the other pair equals (k, k) , for k any integer. (Received August 27, 2004)