1049-05-79 **Ruriko Yoshida*** (ruriko.yoshida@uky.edu), 805A Patterson Office Tower, Department of Statistics, University of Kentucky, Lexington, KY 40506. *The balanced minimum evolution polytopes.*

The balanced minimum evolution (BME) is a well-known distance based method to reconstruct a phylogenetic tree from a dissimilarity map. In 2008, Eickmeyer et al. defined the notion of the BME polytopes and showed that the vertices of the BME polytope are the BME vectors of binary trees. The BME vector of the star phylogeny lies in the interior of the BME polytope, and all other BME vectors lie on the boundary of the BME polytope. In addition, Eickmeyer et al. showed that finding the BME tree is solving a linear programming problem over the BME polytope. In this talk we will discuss on the structures of the BME polytopes and also we will discuss some open problems. (Received February 21, 2009)