

1057-52-435

Ezra Miller and **Megan Owen*** (maowen@ncsu.edu), Department of Mathematics, North Carolina State University, Raleigh, NC 27695, and **J. Scott Provan**. *Averaging Metric Trees*.

The space of metric phylogenetic trees is a polyhedral complex, as constructed by Billera, Holmes, and Vogtmann (2001). Because this space is also non-positively curved, there is a well-defined notion of an average or mean tree for a given set of trees. We describe this mean tree and how to compute it. We will also discuss what it represents in some applications, such as reconstructing species trees from gene trees and comparing the topology of blood vessels in the brain. (Received January 26, 2010)