

**Meeting:** 999, Nashville, Tennessee, SS 12A, Special Session on Biomathematics

999-92-26                    **Qinglan Xia\*** (qlxia@math.utexas.edu), Department of Mathematics, University of Texas at Austin, Austin, TX 78712. *The Formation of Tree Leaves*. Preliminary report.

Tree leaves have diverse and elaborate leaf venation patterns and shapes. It is interesting to understand the mathematics behind it. In this talk, I am going to provide a mathematical model to formulate leaf venation patterns as well as their shapes. In the model, cells aggregated in a way to build an efficient transport system for leaf. The efficient transport system of a tree leaf build here is a modified version of optimal transport paths, which are used to study the phenomenon of ramifying structures in mass transportation. Some computer visualization of tree leaves will be provided at the end of the talk. These figures resemble many tree leaves (like maples) well. (Received June 29, 2004)