
STEPHAN WAGNER, Stellenbosch University

Extremal subtree densities of trees

The average subtree order μ_T and the density $D_T = \frac{\mu_T}{n}$ of a tree T with n vertices were first studied in 1983 by Jamison. While the minimum density is attained by a path, the structure of the trees that attain the maximum is more complicated. It is conjectured that the trees of maximum density must be caterpillars. We lend some support to this conjecture by proving that the extremal tree must have large diameter (close to n). We also show that the maximum density is asymptotically equal to $1 - \frac{2 \log_2 n}{n} + O\left(\frac{\log \log n}{n}\right)$.