How Efficient is Adaptive Delaunay Refinement?

This talk will present a look at the state of the art for a commonly used mesh generation technique, and related research. The mathematical components of the question in the title include: - piecewise linear function approximation - Delaunay triangulation - adaptive refinement - optimal meshing theory We will review insights into each of these that have been gained from bivariate function analysis, computational geometry, and differential geometry over the past 30 years. The question of the title is essentially empirical and some computational evidence for an answer will be provided.