

Meeting: 1002, Pittsburgh, Pennsylvania, SS 2A, Special Session on Convexity and Combinatorics

1002-52-154 **Robert J. MacG. Dawson*** (rdawson@cs.stmarys.ca), Dept. of Mathematics and Computing Science, Saint Mary's University, Halifax, NovaScotia B3H 3C3. *Tilings of the sphere with congruent spherical triangles.*

Sommerville, in the 1920's, gave a characterization of the ways in which a sphere could be tiled with congruent spherical triangles, meeting edge-to-edge and satisfying some additional assumptions. Davies, in the 1960's, dropped some of the assumptions but retained the assumption of edge-to-edge contact; he obtained thereby a larger set of tilings, but left a lot of details to the reader. Ueno and Agaoka, in 2001, filled in the details but greatly increased the length of the classification.

In the last few years, Blair Doyle and the speaker have been working on the classification of tilings of the sphere with congruent triangles, dropping the assumption of edge-to-edge contact. The tilings tend to be rather elegant and complex, and tend to have a chiral symmetry, whereas edge-to-edge tilings usually have mirror symmetries. The isosceles and right-angled cases have been completely classified, and significant progress has been made towards a complete classification. This paper will survey the results obtained so far. (Received September 13, 2004)