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Spherical Tilings by Congruent Quadrangles

A spherical tiling is an edge-to-edge partition of the unit sphere into spherical polygons. Each spherical polygon is called a tile. If all tiles are congruent, then it follows from Euler's formula that those tiles are either 3-, 4- or 5-gons. Polyhedra and tilings are of perennial interest in Chemistry.

In 2002, Ueno and Agaoka completed the classification of spherical tilings by congruent triangles. Recently, Akama and Sakano completed the classification of spherical tilings by congruent daggers and kites.

We will explain the planned approach to classify the remaining spherical tilings by congruent quadrangles and present some first results.