1096-C5-1922 **Robert W Fathauer*** (tessellations@cox.net), 3913 E. Bronco Tr., Phoenix, AZ 85044.
Hyperbolic Fractal Tilings.

We have previously described a variety of fractal tilings (f-tilings), in which tiles are adjacent to larger and smaller tiles that are similar. These f-tilings contain singular points and are of finite extent in the Euclidean plane, with boundaries that are fractal curves. We report here on f-tilings in which the sum of the angles meeting at a vertex is greater than 360 degrees. These have been constructed in Euclidian 3-space using both Mathematica and paper models. In most of the hyperbolic f-tilings that have been examined, the prototile is an isosceles triangle in which the two sides of equal length are shorter than the third side. Second generation triangles are scaled such that their long edges match the two short edges of first generation tiles. The smaller tiles are deflected out of the plane of the adjacent larger tiles according to algorithms that are applied consistently through a number of iterations. Dart- and V-shaped prototiles have been employed as well, and constructions have been carried through ten generations. The smallest tiles describe complex undulating space curves. The surfaces formed by these f-tilings are in some cases reminiscent of hyperbolic surfaces observed in nature, for example in plants such as green leaf lettuce and in jellyfish. (Received September 16, 2013)