1086-K1-1252 **Vladimir L Bulatov*** (info@bulatov.org), Corvalis, OR. *Bending Circle Limits.*

M.C.Escher's hyperbolic tessellations Circle Limit I-IV are based on a tiling of hyperbolic plane by identical triangles. These tilings are rigid because hyperbolic triangles are unambiguously defined by their vertex angles. However, if one reduce the symmetry of the tiling by joining several triangles into a single polygonal tile, such tiling can be deformed. Hyperbolic geometry allows a type of deformation of tiling, which is called bending. One can extend tiling of the hyperbolic plane by identical polygons into tiling of hyperbolic space by identical infinite prisms. The prism's cross section is the original polygon. The shape of these 3D prisms can be carefully changed by rotating some of its sides in space and preserving all dihedral angles. Such operation is only possible in hyperbolic geometry.

The resulting tiling of 3D hyperbolic space creates 2D tiling at the infinity of hyperbolic space which can be projected into plane using usual stereographic projection. After small bending the original circle at infinity of the 2D tiling become fractal curve. Further bend makes the fractal to have thin tentacles, which join and create a fractal set of circular holes. Further bend closes the holes. See http://bulatov.org/math/1209/ for illustrations. (Received September 20, 2012)