Return to Contents page

# Victor Donnay

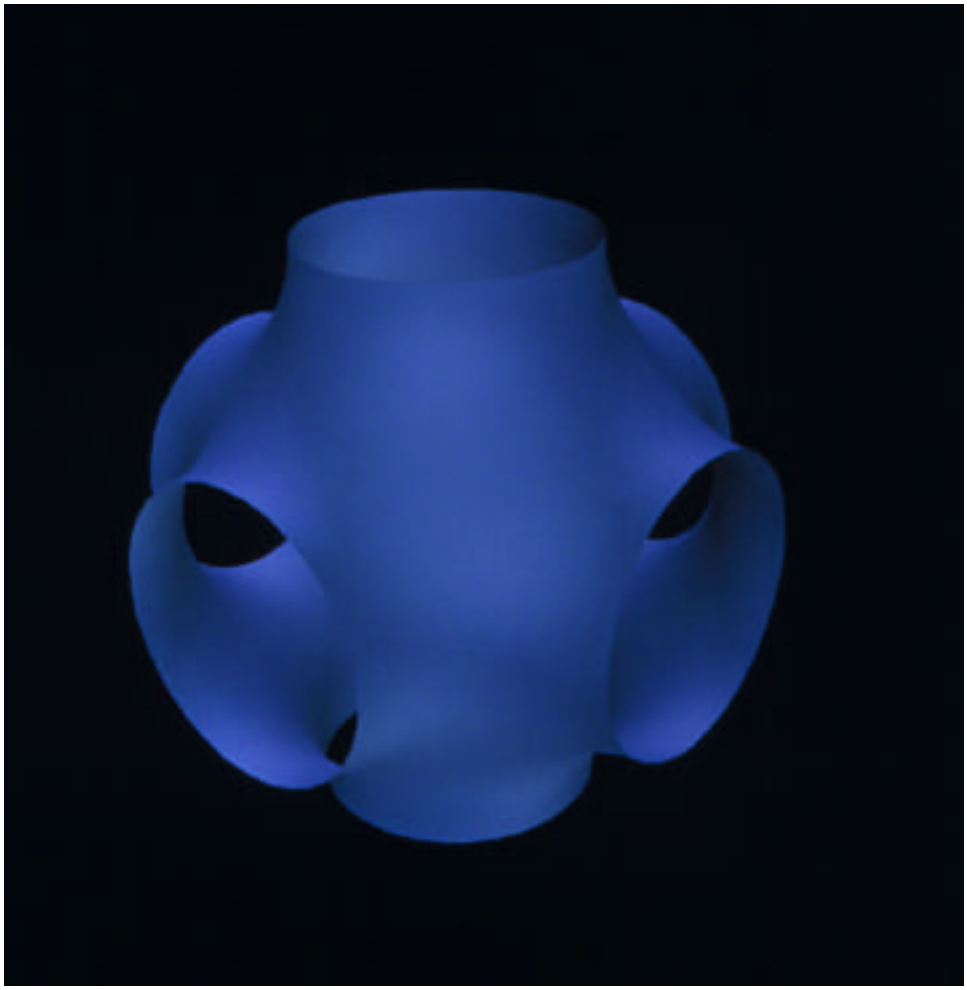
**Special surfaces discussed in my article "Chaotic Geodesic Motion: An extension of M.C. Escher's Circle Limit Designs"**

**One-minute movie: "Turning a Rectangle into a Torus"**

**Five-minute movie on the Costa surface**

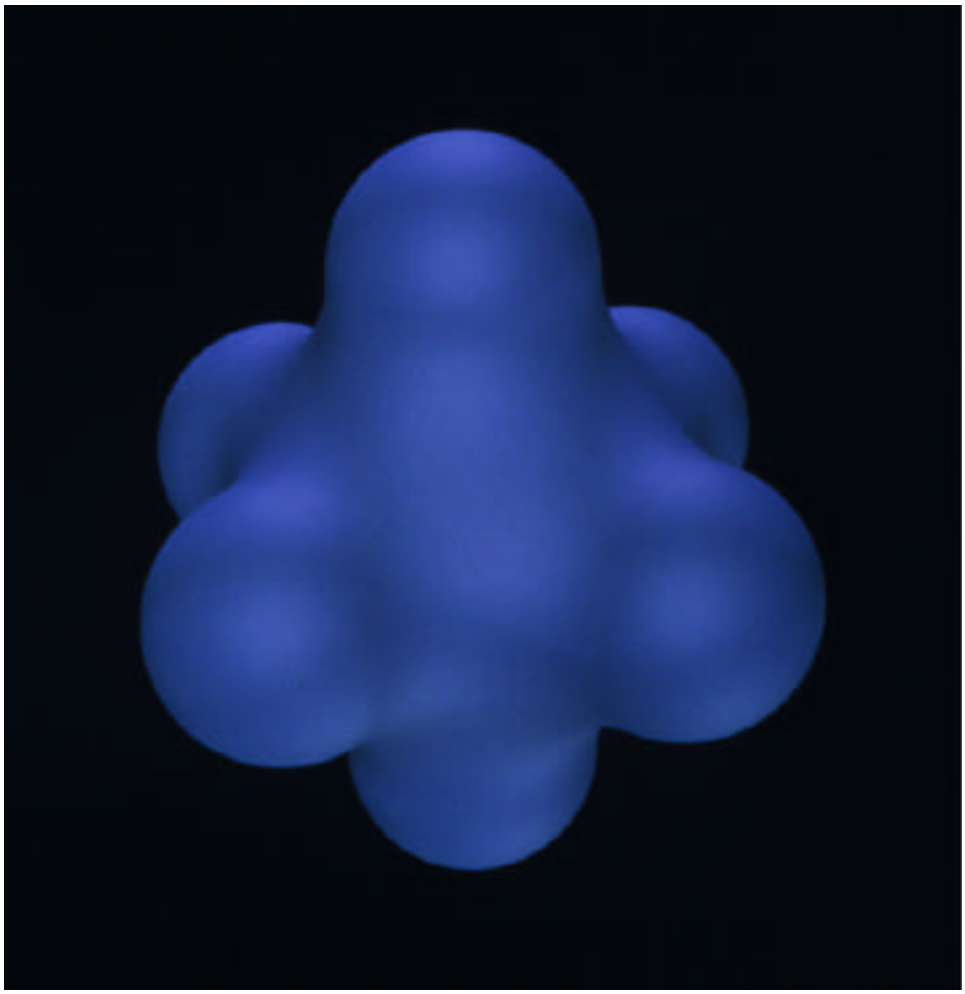
# Schwarz P-Surface

A minimal surface discovered by
H. A. Schwarz in 1890.

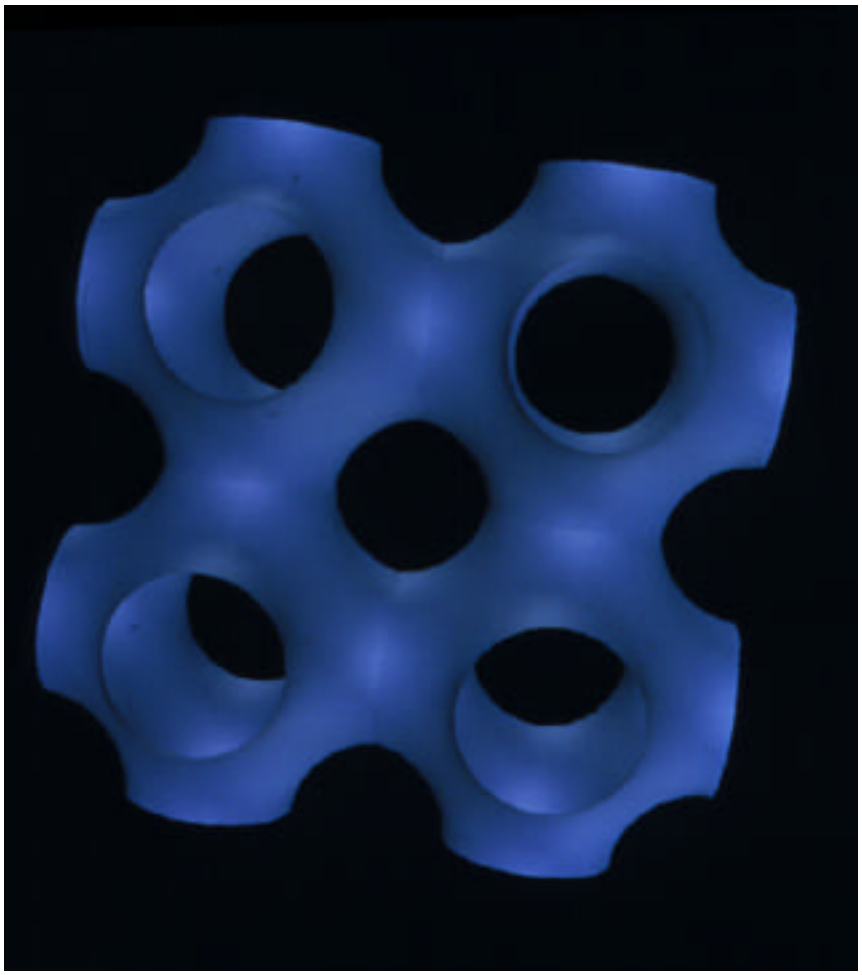


# Sphere with Chaotic Geodesic Motion

Taking the Schwarz P-surface and attaching focusing caps to the ends of the Schwarz P-surface produces a sphere. The geodesic motion on this sphere is chaotic.

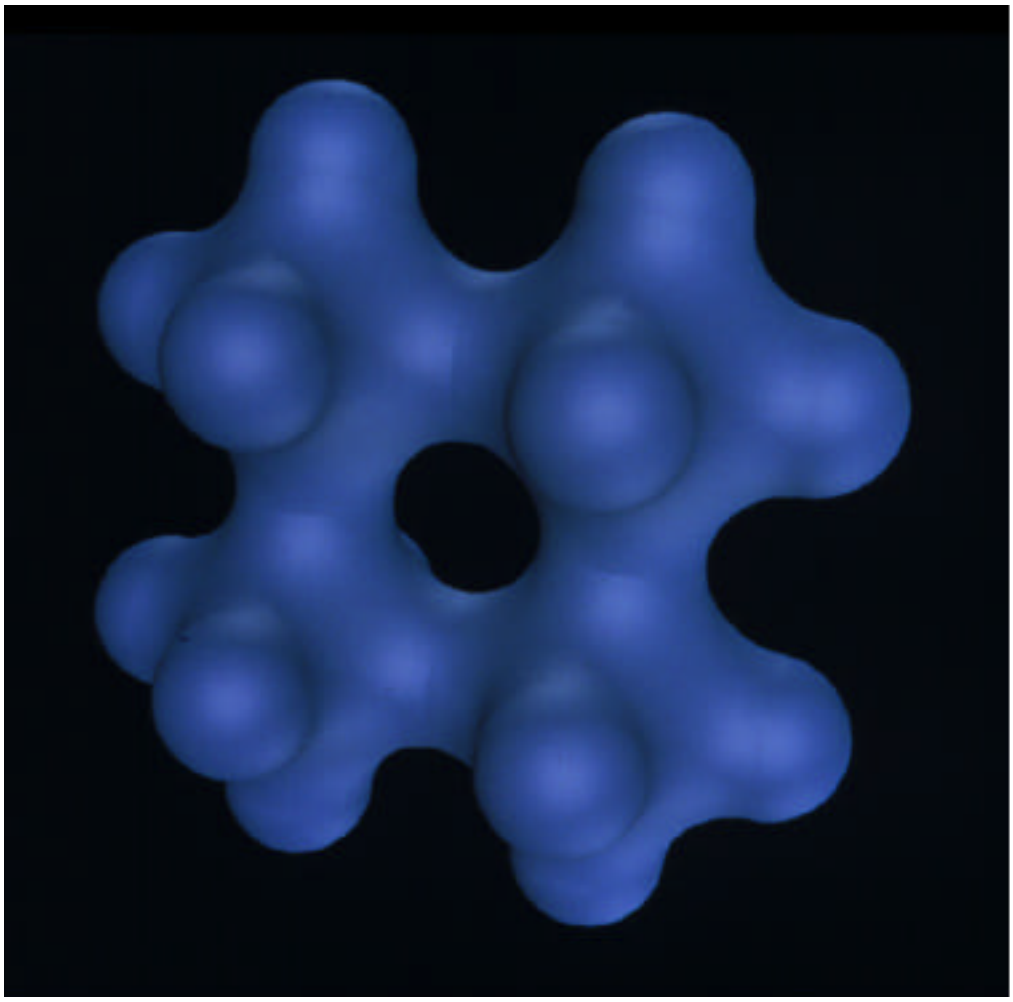


Four copies of the Schwarz surface joined together



# Torus with Chaotic Geodesic Motion

Taking the surface formed by four copies of the Schwarz P-surface and attaching focusing caps to the ends produces a torus. The geodesic motion on this torus is chaotic.



# Torus with 2 Holes

Two-holed torus formed by connecting the edges of an eight-sided fundamental region, decorated with Escher's fish pattern.

Sculpture and photograph by Douglas Dunham.

# Torus Movie

A one minute sound movie showing how a torus (doughnut) can be made by connecting opposite edges of a rectangle.

# Turning a Rectangle into a Torus

**Click on the rectangle to view the movie**

# Costa Movie

A 5-minute sound movie showing the geometry and topology of the Costa Minimal Surface. The Costa surface is a strangely shaped doughnut. The video shows the connection between the Costa doughnut and the standard doughnut.

# The Geometry and Topology of the Costa Surface

**Click on the rectangle to view the movie**

Return to Contents page

Next document