1116-52-768 **John Christopher Bowers*** (bowersjc@jmu.edu) and **Ileana Streinu** (istreinu@smith.edu).

Geodesic Universal Molecules.

The universal molecule is a well-known origami crease pattern which allows a convex polygon to be folded into a 3D structure having certain tree-like properties. In this talk we introduce geodesic universal molecules, which generalize the universal molecule to non-convex polygons. This includes non-convex polygons drawn on the surface of intrinsically flat, piecewise-linear surfaces that may have self-overlap when laid open, flat in the plane and may have negative curvature along its boundary. We also generalize Lang's universal molecule algorithm to produce the geodesic universal molecule for any such non-convex polygon. (Received September 12, 2015)