1125-52-1296 **Doyon Kim*** (dzk0028@auburn.edu), 1954 Keystone Drive, Auburn, AL 36830. *Variations of Toeplitz' Conjecture.*

In 1911, Otto Toeplitz made a conjecture asserting that every Jordan curve in the plane contains four points forming the corners of a square. There are numerous positive partial results, including the case of convex curves, but the general question is still unsolved.

In this talk we consider variations of Toeplitz' conjecture. We say that a polygon P is strongly inscribed in a Jordan curve C, if all of its vertices are on C and the interior of P is a subset of the region enclosed by C. We study the problem of characterization of those triangles T, for which every Jordan curve has a strongly inscribed triangle similar to T. We prove that if T is a triangle such that all three angles of the triangle T are greater than 45 degree then there is a Jordan curve C that does not have a strongly inscribed triangle similar to T.

Then we show that for every Jordan curve C and a triangle T, there is a triangle T' similar to T, completely inside of C with at least two vertices of T' are on C. We also prove the similar statement for quadrilateral D: For every Jordan curve C and a quadrilateral D, there is a quadrilateral D' similar to D, completely inside of C with at least two vertices on C. (Received September 16, 2016)