1146-52-433 **Andras Bezdek*** (bezdean@auburn.edu), Department of Mathematics, 221 Parker Hall, Auburn University, Auburn, AL 36830, and **Antal Joós**, Deaprtment of Mathematics., University of Dunaújváros, Dunaújváros, 2400, Hungary. *Area optimization of special polygons.*

One of the area minimization statements, called Hajós' Lemma, became particularly known, due to its application at solving the densest circle packing problem. Hajós considered a pair of concentric circles and wanted to find the minimum area polygon among those polygons which contain the smaller circle and whose vertices are outside of the larger circle. We prove two generalizations: i) we allow the circles to be non concentric, ii) we consider disc polygons instead of usual polygons. We also consider the dual problem, where we again consider a pair of concentric circles and want to find the maximum area polygon among those polygons which are contained in the larger circle and whose sides intersect the concentric smaller circle. This question answers a circle covering problem and also can be generalized for non concentric circles and also for disc polygons. (Received January 28, 2019)