1048-52-242 **Carlos M Nicolas*** (`cmnicola@uncg.edu`), Department of Mathematics and Statistics, Room 116, Petty Building, 317 College Ave., Greensboro, NC 27455. *Defining k-triangulations for points in general position in the d-dimensional space.*

A k-triangulation of the n-gon is a maximal set of diagonals of the n-gon such that no $k + 1$ mutually cross. We review recent results on k-triangulations of the n-gon, including a characterization which does not use the concept of crossings. We show how this characterization can be rephrased in terms of k-splitters and use this approach to define k-triangulations for sets of points in general position in the d-dimensional space. This definition agrees with the usual triangulations of points for $k = 1$. We consider the problem of constructing k-triangulations for arbitrary sets of points in d dimensions and the connections with results on k-splitters. (Received February 09, 2009)