

1152-05-358

**Art Duval\*** (adual@utep.edu) and **Martin Eduardo Armenta-Frias**. *Counting topologies of metric of holomorphic polynomial field with simple zeros*. Preliminary report.

We reduce the problem in the title to the problem of counting unlabeled planar trees with black and white vertices, where each white vertex has degree at least three, and where no white vertices are adjacent. We use the theory of species to describe a generating function in terms of a root of a cubic equation; this is good enough for a computer algebra system to explicitly compute the number of trees with  $m$  black vertices and  $n$  white vertices for many small values of  $m$  and  $n$ . In particular, we give the number of trees up to  $m = 13$  black vertices. A key tool is an extension of the Dissymmetry Theorem to certain multi-sort species. (Received September 09, 2019)