

1108-52-393

Gloria Mari Beffa* (maribeff@math.wisc.edu), Department of Mathematics, 480 Lincoln Drive, Madison, WI 53706. *A Lax representation for the Shift map on pentagram spirals.*

In this talk we will describe the definition of pentagram spirals of class (N,K) and study the case $K=1$. Pentagram spirals were introduced by Richard Schwartz, and they are formed by choosing a distinguished point on the side of a polygon starting at which the polygon starts spiraling inwards using a pentagram map construction. Schwartz interpreted the shift map (the map that takes a spiral to the one obtained by shifting the vertices once) as the $N+1$ root of the pentagram map, he also conjectured that the map was also integrable. We will describe a coordinate system on the moduli space of twisted spirals, a system that can be used to create a parameter-free Lax representation for the shift map. We will then show that in our coordinates the shift map is invariant under the action of a one parameter group, hence introducing the spectral parameter in a representation that can then be used for integration. (Received January 19, 2015)