

ISOPERIODIC PENCILS OF CONFOCAL CONICS AND PAINLEVE VI EQUATIONS

Vladimir Dragović

ABSTRACT. We study Poncelet polygons inscribed in a circle and circumscribed about conics from a confocal family, which is a question that naturally arose in the analysis of the numerical range and Blaschke products. We examine the behaviour of the rotation numbers and discover confocal families of conics with the property that each conic from the family is inscribed in k -Poncelet polygons inscribed in the circle, with the same k . Characterization of all such families is given and it is proved that they always correspond to $k = 4$. A relationship with solutions to Painleve VI equations is established.

The talk is based on a joint work with Milena Radnović.

University of Texas at Dallas, USA.
Mathematical Institute SANU, Serbia.