Singular perturbations of Blaschke products and connectivity of Fatou components

Jordi Canela Sanchez (Université Toulouse 3)

The study of singular perturbations is a very active research field in holomorphic dynamics. In this talk I will present a study on a family of singular perturbations of degree 4 Blaschke products. Within this family, the free critical points of the Blaschke products lead to the emergence of new dynamic phenomena after the singular perturbation. It is known that periodic Fatou components have connectivity 1, 2 or infinity. However, preperiodic Fatou components may have finite connectivity greater than 2. Fixed any n, there are known examples of rational maps with Fatou components of connectivity n. However, the degree of these rational maps grows with n. We prove that this family of singularly perturbed Blaschke products provides examples of maps which have Fatou components of arbitrarily large finite connectivity (within a single dynamical plane).