

1137-30-182

Oleg Ivrii*, 1200 E California Blvd, Pasadena, CA 91125. *Describing Blaschke products by their critical points.*

In this talk, I will discuss a question which originates in complex analysis but is really a problem in non-linear elliptic PDE. It is well known that up to post-composition with a Möbius transformation, a finite Blaschke product may be uniquely described by the set of its critical points. I will discuss an infinite-degree version of this problem posed by Dyakonov. Let J be the set of inner functions whose derivative lies in the Nevanlinna class. I will explain that an inner function in J is uniquely determined by the inner part of its derivative (its critical structure), and describe all possible critical structures of inner functions in J . I will also give a concrete description of the natural topology on J which respects the convergence of critical structures. Similar results hold for "nearly-maximal" solutions of the Gauss curvature equation and subspaces of kappa-Beurling-type of a weighted Bergman space. (Received February 02, 2018)