

İSTANBUL ANALYSIS SEMINARS

GEOMETRIC PROPERTIES OF UPPER LEVEL SETS OF LELONG NUMBERS ON PROJECTIVE SPACES

Dan COMAN

Syracuse University
Department of Mathematics

Abstract: If T is a positive closed current on a complex manifold M and $\alpha \geq 0$, we consider the following upper level set of the Lelong numbers of T ,

$$E_{\alpha}^{+}(T) = \{z \in M : \nu(T, z) > \alpha\}.$$

We present joint results with Tuyen Trung Truong on geometric properties of this set in the case of projective spaces. For instance, if $M = \mathbb{P}^n$ and $\|T\|$ is the mass of T with respect to the Fubini-Study form, we have the following theorems:

Theorem 1. *If T is a positive closed current of bidimension (p, p) on \mathbb{P}^n , $0 < p < n$, with $\|T\| = 1$, then the set $E_{(p+1)/(p+2)}^{+}(T, \mathbb{P}^n)$ is contained in a p -dimensional linear subspace of \mathbb{P}^n .*

Theorem 2. *If T is a positive closed current of bidimension (p, p) on \mathbb{P}^n , $0 < p < n$, with $\|T\| = 1$, then the set $E_{p/(p+1)}^{+}(T, \mathbb{P}^n)$ is either contained in a p -dimensional linear subspace of \mathbb{P}^n or else it is a finite set and $|E_{p/(p+1)}^{+}(T, \mathbb{P}^n) \setminus L| = p$ for some line L .*

Date: June 27, 2014

Time: 15:40

Place: Sabancı University, Karaköy Communication Center
Bankalar Caddesi 2, Karaköy 34420, İstanbul

İstanbul Analysis Seminars is supported by TÜBİTAK.