

# THE BERNSTEIN-MARKOV PROPERTY AND APPLICATIONS IN PLURIPOTENTIAL THEORY

FEDERICO PIAZZON

ABSTRACT. The Bernstein Markov Property (BMP) is a comparability conditions of the  $L^2_\mu$  and  $\max_K |\cdot|$  norms of polynomials for a given a compact set  $K \subset \mathbb{C}^n$  and a measure  $\mu$  with  $\text{supp } \mu \subseteq K$ . Several variants (i.e.,  $L^p$ , weighted, ...) of this property has been introduced.

Bernstein Markov property arises as a key tool in the proofs of some fundamental results in (weighted) Pluripotential theory and random polynomials. More recently, it has been shown that such results can be reinterpreted in a probability fashion proving a Large Deviation Principle.

We recall the best-known sufficient condition for the standard BMP and present two new results. Namely, a sufficient mass density condition for the BMP for rational functions and a sufficient mass density condition for the weighted BMP on unbounded closed sets in the complex plane.

ROOM 712 DEPARTMENT OF MATHEMATICS, UNIVERSITÁ DI PADOVA, ITALY. PHONE +39 0498271260

*E-mail address:* [fpiazzon@math.unipd.it](mailto:fpiazzon@math.unipd.it)

*URL:* <http://www.math.unipd.it/~fpiazzon/>

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