



Jaegil Kim (jkim@math.kent.edu) Department of Mathematics, Kent State University, Kent, OH 44242, USA, *Polynomial numerical index of Banach spaces.*

ABSTRACT. The (polynomial) numerical index of a Banach space X is a constant relating to the concepts of the numerical radius of functions on X . We prove that for a finite dimensional complex Banach space X with an absolute norm, its polynomial numerical indices are one if and only if X is isometric to ℓ_∞^n . For the proof we associate Banach spaces to some graphs and understand them using graph-theoretic terminology. Moreover, characterizing complex extreme points of the unit ball, we have the same result for the analytic numerical index. (This is a joint work with Han Ju Lee.)