SETS OF MONOMIAL CONVERGENCE ON ℓ_r

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Abstract. For each entire function f on n complex variables, there is a series of monomials, the monomial expansion of f, such that for every z,

$$f(z) = \sum_{\alpha} c_\alpha z^\alpha,$$

and the convergence is uniform on each compact set. If f is a holomorphic function in an infinite dimensional sequence space X, then it also has a monomial expansion, but in this case, the series does not necessarily converge for every $z \in X$.

There has been some effort to characterize the subset of X where the monomial expansion of every holomorphic function on a family $\mathcal{F}$ of functions converge. This set is called the *set of monomial convergence* of $\mathcal{F}$. The set of monomial convergence has only been characterized in the case where is when $X = \ell_1$, or for the family of homogeneous polynomials on $X = c_0$.

In this talk we will describe the set of monomial convergence for the space $H_b(\ell_r)$ of entire functions of bounded type on ℓ_r, and for $\mathcal{P}(^m\ell_r)$, the space of m-homogeneous polynomials on ℓ_r, when $1 < r \leq 2$.

The talk is based on a joint work with Daniel Galicer (Universidad de Buenos Aires), Martín Mansilla (Universidad de Buenos Aires) and Pablo Sevilla-Peris (Universidad Politécnica de Valencia).