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SEMINARIO

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"Higher order spectra, equivariant Hodge-Deligne polynomials and Macdonald type equations"

Abstract: Due to Macdonald, for a topological space *X* one has $1+\sum_k\chi(S^kX)=(1-t)^{-\chi(X)}$, where $\chi(\bullet)$ is the Euler characteristic defined in terms of the cohomologies with compact support, $S^kX=X^k/S_k$ is the *k*-th symmetric power of the space *X*. A Macdonald type equation for an invariant is a formula which gives the generating series of the values of the invariant for the symmetric powers of a space (or for their analogues) as a series not depending on the space in the exponent equal to the value of the invariant for the space itself. Macdonald type equations can be formulated for a number of invariants which can be considered as generalizations of the Euler characteristic, e.g., for the Hodge-Deligne polynomial. If the invariant takes values in a ring different from the ring of integers (or of other numbers), one uses a power structure over the ring to give sense to the equation. The Hodge spectrum is an additive invariant of a complex quasi-projective variety with an automorphism of finite order on it. In this way it can be considered as a generalization of the Euler characteristic. For topological spaces with finite group actions one has the notions of the orbifold Euler characteristic and of higher order Euler characteristics. In an analogy with these notions we define notions of higher order spectra of a complex quasi-projective manifold with an action of a finite group *G* and with a *G*-equivariant automorphism of finite order, some of their refinements and give Macdonald type equations for them.

The talk is mostly based on a joint work with W. Ebeling.

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Organiza: G.I.R. SINGACOM