Queen's Algebraic Geometry
— Seminar —

Primitive Cohomology and the Tube Mapping

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Abstract

Let X be a complex projective manifold of dimension d; we are interested in its singular cohomology. According to the Lefschetz hyperplane theorem, the cohomology of X is almost entirely determined by the cohomology of a smooth hyperplane section. The only "new" part is the so-called primitive cohomology in degree d.

To study the primitive cohomology, H. Clemens has introduced the tube mapping; this is a construction that produces primitive cohomology classes on X not from a single smooth hyperplane section, but from the family of all of them. In the talk, I will show that the entire primitive cohomology is generated by the tube mapping, provided the embedding of X is of sufficiently large degree. When $\dim X$ is even, this involves using a pretty result, due to W. Janssen, about the structure of monodromy groups.

Monday, January 26, 2009
4:30pm – 5:30pm
319 Jeffery Hall