

IMI

Instituto de Matemática Interdisciplinar

El programa de "Matemática Pura Intertemática" continúa las actividades dedicadas a la línea "Topología de variedades algebraicas complejas" (coordinada por J.M. Ruiz y E. Arrondo con la colaboración del Departamento de Álgebra) con la siguiente conferencia:

"Barth-Lefschetz results for submanifolds of a product of projective spaces"

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Abstract:

In the first part of this lecture I am going to present a geometric approach toward Barth-Lefschetz theorems for small-codimensional submanifolds of a complex projective space **P**ⁿ for the Picard goups and fundamental group. I will try to keep this first part at an elementary level, also to better illustrate the main ideas of the second part. Then, in the same spirit, I will present some new results for smallcodimensional submanifolds X of a product $\mathbf{P}^m \times \mathbf{P}^n$ of projective spaces. Specifically, let us denote by α : Pic($\mathbf{P}^m \times \mathbf{P}^n$) \rightarrow Pic(X) the restriction map of Picard groups. One of the results states that a is injective and its cokernel is torsion free (resp. a is an isomorphism). These results (obtained in collaboration with Flavia Repetto) involve the maximum dimension of the images of X under the two canonical projections of $\mathbf{P}^{m} \times \mathbf{P}^{n}$ and improve a general result of Sommese (valid for submanifolds of an arbitrary rational homogeneous space) in the case of submanifolds of P^m×Pⁿ. I shall show by examples that these results are sharp. The relationship with some known Barth-Lefschetz type results will also be discussed. The main technical ingredients are: the Lefschetz theory as developped by Grothendieck in 1962, a result of Faltings and a systematic use of Kodaira-Le Potier vanishing theorems in the generalized form given by Sommese.

Viernes, 24 de noviembre de 2006 12:15 horas, AULA B-13 FACULTAD DE CIENCIAS MATEMÁTICAS Universidad Complutense de Madrid