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SEMINARIO DE GEOMETRÍA ALGEBRAICA

Jueves 15 de febrero de 2007, 13:00, Seminario 238

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Impartirá la conferencia

Monads and vector bundles on quadrics

Summary: A monad on a projective variety is a complex of three vector bundles exact everywhere except in the middle. Rao, Mohan Kumar, Peterson have successfully used this tool to investigate the intermediate cohomology module of a vector bundle on projective spaces and give cohomological splitting conditions. Our aim is to extend this result on smooth quadric hypersurfaces. We give some conditions that are necessary in order to ensure the existence of a monad associated to a bundle. Then we improve Ottaviani's splitting criterion and we obtain the equivalent of the result by Rao, Mohan Kumar and Peterson on a quadric hypersurface. In the last part of the talk we focus our interest on rank two vector bundles on Q_n ($n > 3$) and we classify the bundles without inner cohomology. It surprisingly exactly agrees with the classification by Ancona, Peternell and Wisniewski of rank 2 Fano bundles. We finally give the classification of rank 3 vector bundles without inner cohomology on a quadric hypersurface Q_n ($n > 3$) by studying the associated monads.