Seminari de Geometria Algebraica 2011/2012 (UB-UPC)
Divendres 25 de maig a les 15 h, aula B1 de la FM-UB
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Artinian Gorenstein rings and homogeneous polynomials that "split" additively

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A homogeneous polynomial f decomposes or "splits" additively if it is possible to write $f = g+h$ where g and h are polynomials in independent sets of variables, up to base change. All splittings $f = g_1 + ... + g_n$ can be computed from a set M_f of matrices associated to f. When $\deg f >= 3$ there is a unique maximal splitting, a consequence of M_f being a commutative matrix algebra when $\deg f >= 3$.
The "splitting" properties of a polynomial f has consequences for the graded Artinian Gorenstein quotient $R/ann(f)$. Indeed, we can compute its minimal free resolution in terms of the minimal free resolutions $R/ann(g_i)$ of its additive components. This leads to simple formulae for the Hilbert function H and the graded Betti numbers of $R/ann(f)$. We can even compute the dimension of a "splitting subfamily" of the parameter space $PGor(H)$, and the dimension of the tangent space to $PGor(H)$ at the point corresponding to an f that splits.
