Hodge polynomials of some complete intersections
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To each complex algebraic variety $X$, one associates its ‘Hodge polynomial’, a polynomial in two variables denoted by $E_X(u, v)$ and uniquely determined by the following properties:

(i) $E_X(u, v) = \sum_{p,q} \dim H^p(X, \Omega^q_X) u^p v^q$ if $X$ is smooth and projective,
(ii) $E_X(u, v) = E_Y(u, v) + E_Z(u, v)$ if $X$ is the disjoint union of locally closed subvarieties $Y$, $Z$.

For instance, $E_X(u, u)$ is the ‘virtual Poincaré polynomial of $X$’ introduced by Fulton, and $E_X(-1, -1)$ is the Euler characteristic.

The talk will present an algorithm to compute Hodge polynomials of complete intersections in certain homogeneous spaces: flag varieties, and semi-abelian varieties. This extends results of Danilov and Khovanskii that determine the Hodge polynomials of complete intersections in toric varieties. The main ingredient is a generalization of Hodge polynomials to triples $(X, D, L)$, where $X$ is a smooth projective complex variety, $D \subset X$ a simple normal crossings divisor, and $L \to X$ a line bundle.