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## Topology of complex projective varieties with isolated singularities

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The cohomology of smooth complex projective varieties comes endowed with its Hodge decomposition. This structure imposes very drastic conditions on the topology of such varieties. For example, the rational homotopy type is formal (Deligne-Griffiths-Morgan-Sullivan).

- In the case of singular varieties, we know after works of Deligne, Hain, Morgan, Navarro-Aznar... that we can endow the cohomology and the rational homotopy groups with a mixed Hodge structure. These Mixed Hodge structures carry interesting geometric information.

- Moreover Goresky and MacPherson introduced Intersection cohomology in order to have a “good” cohomology for singular spaces, where we still have Poincaré duality.

In this talk I will survey a homotopical treatment of Intersection cohomology (developped in collaboration with Martin Saralegui and Daniel Tanré), where we associate to each singular space its perverse homotopy type. I will discuss how the theory works in the case of complex projective varieties with isolated singularities where we can endow the perverse homotopy type with a mixed Hodge structure and how we get some formality results (work in progress with Joana Cirici).

### Mots Clés / Keywords

Algebraic varieties, Hodge theory, Intersection cohomology

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