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## Hypoelliptic deformation, self-adjointness, and analytic torsion

*mardi 12 décembre 2017 09:30 (50 minutes)*

The purpose of the talk is to explain the construction of non self-adjoint Hodge Laplacians, which naturally deform classical Hodge theory.

If  $X$  is a compact Riemannian manifold, let  $X$  be the total space of its tangent bundle. The deformed Hodge Laplacian is constructed over  $X$ . It is a hypoelliptic operator on  $X$ , which is essentially the sum of a harmonic oscillator and of the generator of the geodesic flow. In the real case, the symplectic form of  $X$  is used in its construction.

Applications to analytic torsion, real and holomorphic, will be given. Time permitting, connections with Selberg's trace formula will be explained.

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