Perverse filtrations via Brylinski-Radon transformations

Perverse sheaves are certain complexes of constructible sheaves invented by Goresky-MacPherson in 1983. This talk will be centered around the topic of (middle) perverse sheaves and more generally on t-structure(s) on the derived category of constructible sheaves on an algebraic variety X defined over a field $\Bbbk$. A t-structure gives rise to truncation functors and hence a cohomology theory which takes values in the abelian category of perverse sheaves. A complex K of constructible sheaves on X can be filtered using these truncation functors, in turn inducing a filtration on the (hyper)cohomology of the complex K. In 2010, deCataldo-Migliorini proved a result which explains this filtration geometrically. In recent work with K. V. Shuddhodan we show that their result can be upgraded to an equality at the level of sheaves and is a corollary of the t-exactness of a certain Brylinski-Radon transform. Our article is available at https://arxiv.org/abs/2309.13973.