Eigenspace Decomposition of Mixed Hodge Structures on Alexander Modules

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SUMMARY

In previous work jointly with Geske, Herradón Cueto, Maxim and Wang [1], we constructed a mixed Hodge structure (MHS) on the torsion part of Alexander modules, which generalizes the MHS on the cohomology of the Milnor fiber for weighted homogeneous polynomials. The cohomology of a Milnor fiber carries a monodromy action, whose semisimple part is an isomorphism of MHS. The natural question of whether this result still holds for Alexander modules was then posed. In this talk, we will talk about the work in [2] regarding the solution to this question, as well as some consequences and explicit computations.

Keywords: infinite cyclic cover, Alexander module, mixed Hodge structure, formal manifolds

AMS Classification: 14C30, 14D07, 14F45, 32S30, 32S35, 32S40, 55N30

References

[1] ELDUQUE, E., GESKE, C., HERRADÓN CUETO, M., MAXIM, L., WANG, B.. Mixed Hodge structures on Alexander modules. *Mem. Amer. Math. Soc.*. To appear.

[2] ELDUQUE, E., HERRADÓN CUETO, M.. Eigenspace Decomposition of Mixed Hodge Structures on Alexander Modules. *Int. Math. Res. Not. IMRN*. To appear.

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