



# ODTU-Bilkent Algebraic Geometry

## Computing limit mixed Hodge structures

By

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**Abstract:** Consider a smooth family of varieties over a punctured disk that is extended to a flat family over the whole disk, e.g., consider a 1-parameter family of hypersurfaces with a central singular fiber. The Hodge structures (i.e. periods) of smooth fibers exhibit a divergent behavior as you approach the singular fiber. However, Schmid's nilpotent orbit theorem states that this divergence can be "regularized" to construct a limit mixed Hodge structure. This limit mixed Hodge structure contains detailed information about the geometry and arithmetic of the singular fiber. I will explain how one can compute such limit mixed Hodge structures in practice and give a demonstration of my code.

**Date:** 11 November 2022, Friday

**Time:** 15:40 (GMT+3)

**Place:** Zoom

To request the event link, please send a message to [sertoz@bilkent.edu.tr](mailto:sertoz@bilkent.edu.tr)