The deformation property of Bridgeland stability conditions via the Harder-Narasimhan polygon

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Abstract

After recalling two equivalent definitions of Bridgeland stability conditions on a triangulated category, we present a proof of the fact that the space of stability conditions (satisfying the support property with respect to some quadratic form) forms a complex manifold. We will follow the content of [Bay19], placing particular emphasis on the role of the Harder-Narasimhan polygon in this result. This particular proof differs from the original one in [Bri07] as it only requires to deform stability conditions in a fixed abelian category, thus avoiding the need for quasi-abelian categories.

References

[Bay19] A. Bayer. "A short proof of the deformation property of Bridgeland stability conditions". In: *Math. Annal.* 375 (2019), pp. 1597–1613.

[Bri07] T. Bridgeland. "Stability conditions on triangulated categories". In: *Math. Annal.* 166 (2007), pp. 317–345.