

In the context of polarized abelian varieties, Zhi Jiang and Giuseppe Pareschi have introduced the cohomological rank functions associated to a (complex of) coherent sheaves. These functions are closely related to the continuous rank functions introduced previously by Miguel Angel Barja, and studied together with Rita Pardini and Lidia Stoppino in the context of irregular varieties.

I will present joint work with Andrés Rojas that show that, in the case of abelian surfaces, Bridgeland stability provides an alternative description of the cohomological rank functions. This helps to understand their general structure, and allows to compute geometrically meaningful examples. I will illustrate the potential of this reinterpretation by presenting new results on syzygies of abelian surfaces proven by Andrés Rojas.