

Complex Reflection Groups, K3 surfaces and Lehrer-Springer theory

Friday, June 17, 2022 9:30 AM (1 hour)

I will talk about a long project in collaboration with C. Bonnafé, that relates K3 surfaces and complex reflection groups. This generalizes and explains some results of 2003 by W. Barth and myself. In fact by using complex reflection groups and Lehrer-Springer theory we obtained the following three main results:

1. Classification of some finite groups of maximum order acting on K3 surfaces.
2. Classification of all K3 surfaces that one can obtain as quotient of surfaces in complex projective three space by certain subgroups of finite complex reflection groups of rank four.
3. Description of elliptic fibrations on the previous K3 surfaces.

After an overview of the results, I will explain more in detail point 2., in particular I will introduce some Lehrer-Springer theory from the theory of complex reflection groups, which is a fundamental tool to avoid a case-by-case analysis in the classification.

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