Röhrle, Gerhard

Freeness of multi-reflection arrangements for complex reflection groups

In 2002, Terao showed that every reflection multi-arrangement of a real reflection group with constant multiplicity is free. In this report on joint work with T. Hoge, T. Mano, and C. Stump, we first generalize Terao's result to multi-arrangements stemming from well-generated unitary reflection groups, where the multiplicity of a hyperplane depends on the order of its stabilizer. Here the exponents depend on the exponents of the dual reflection representation. In a second step we extend our results further to all imprimitive irreducible unitary reflection groups (the bulk of which is not well-generated). In this case the exponents turn out to depend on the exponents of a certain Galois twist of the dual reflection representation that comes from a Beynon-Lusztig type semi-palindromicity of the fake degrees.

I shall explain our result in detail and outline how we generalized Yoshinaga's approach to Terao's result for Coxeter groups mentioned above making use of recent developments of flat systems of invariants due to Kato, Mano and Sekiguchi.