

# Combinatorics of Multipartitions and Families of Characters

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Families of characters were defined for Weyl groups by Lusztig for the determination of the families of unipotent characters of finite reductive groups. Lusztig’s definition is inductive and uses his famous  $a$ -function. There are two alternative definitions for families of characters: one that uses Kazhdan–Lusztig cells, and one that uses the blocks of the Iwahori–Hecke algebra over a special ring known as the “Rouquier ring.” The former generalises to finite Coxeter groups (under certain assumptions), the latter to all complex reflection groups. Another approach has been recently suggested which would also allow the definition of cells and families for all complex reflection groups: via the rational Cherednik algebras. In this talk, we will discuss the description of the families of characters for the complex reflection groups of the infinite series  $G(l, p, n)$  using combinatorics of multipartitions, and their connection with the families of characters of Weyl groups of type B.

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