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p-adic integral group rings

This talk surveys some methods to obtain an explicit description of the Morita equivalence class of a p -adic integral group ring RG of a finite group G which have been introduced by W. Plesken. They are essentially based on linear algebra.

In small cases, the ordinary character table together with the p -modular decomposition matrix of G allow to derive RG by purely combinatorial means. One main ingredient is the fact that RG is a selfdual order with an explicitly given involution. The symmetric groups provide particularly nice examples and we use the Jantzen–Schaper formula to obtain $\mathbf{Z}_p S_{2p}$.