An introduction to
the lower defect groups of a block

Diego García Lucas

21 April, 2022

Abstract

The aim of this talk is to give a light introduction to the lower defect groups of a block, which generalize the notion of defect group of a block. Firstly introduced by Brauer, these groups connect important properties of a finite group, its conjugacy classes, p-sections and blocks. A simpler equivalent definition for these groups was presented by Olsson, whose approach we follow. We also revisit the relation between the orders of these groups, the Cartan matrix, and the character table, and conclude with a recent conjecture of Sambale about how the list of these orders could determine if the considered block is nilpotent or not.