

On the exponent of the Schur multiplier

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17/08/18

Sexta-feira

10:30 Horas

Auditório do MAT

Abstract. The Schur multiplier is the fundamental invariant of the theory of projective representations of finite groups, moreover, it is one of the principal objects in (co)homology theory of groups. In most situations, given a finite group G , it is very hard to describe the multiplier $M(G)$ explicitly, and, therefore, it is important to obtain some arithmetical information, by providing bounds for its order, rank, and exponent. We will discuss of an original notion, the unitary cover of a group, which allowed to improve many of the known bounds for $\exp M(G)$. This is a universal extension having minimal exponent with respect to certain projective lifting property, and it is defined in a rather natural way.