

## Block theory for profinite groups

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If  $k$  is a field of characteristic  $p$  and  $G$  is a finite group, the group algebra  $kG$  need not be indecomposable as an algebra. The block theoretic approach to the representation theory of  $kG$  is to write  $kG$  as a direct product of indecomposable algebras – the “*blocks*” of  $G$  – and study the modules for each block separately. To each block  $B$  is associated a  $p$ -subgroup  $D$ , which measures the difficulty of the block. Very little is understood in general, but blocks whose  $D$  is cyclic are classified. We explain this theory and extend it to profinite groups.