

ANNIHILATING CLASS GROUPS BY MEANS OF UNITS

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ABSTRACT: For an abelian extension K/F of number fields, the machinery of F. Thaine and K. Rubin constructs annihilators of the ideal class group of K as images of so-called special units of K in suitable Γ -linear maps to $\mathbb{Z}[\Gamma]$, where $\Gamma = \text{Gal}(K/F)$. If $F = \mathbb{Q}$ or F is an imaginary quadratic field then there is a standard source of special units: circular units or elliptic units, respectively. This talk is devoted to a particular case when $F = \mathbb{Q}$ or F is an imaginary quadratic field and the extension K/F is cyclic of p -power degree, p being an odd prime. For some fields K of this type we obtain a stronger annihilation result than the standard application of Thaine-Rubin machinery produces. This gain is obtained by an explicit construction of a unit which is not known to be special, but which can still be used under a slight modification of the machinery.