THE FIELDS INSTITUTE
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ABSTRACTS 1.2

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The Representation Rings of Group Codes

Let G denote a finite group code and $\mathcal{J}$ a sets of subgroups of G which is closed with respect to conjugation and intersection with $G \in \mathcal{J}$. A $(G, \mathcal{J})$-set is defined as a finite left G-set S such that $G_s \in \mathcal{J}$ for all s in S. Observe that the conditions on $\mathcal{J}$ imply that for any $W \in \mathcal{J}$ the set G/W, of left cosets of W in G, is a $(G, \mathcal{J})$-set, the G-action on G/W is defined by left multiplication

$$G \times G/W \to G/W : \ (h, gW) \longrightarrow hgW.$$

Moreover for any two $(G, \mathcal{J})$-sets S_1 and S_2 the G-sets $S_1 \times S_2$ and $S_1 \cup S_2$ are $(G, \mathcal{J})$-sets. In this way, the isomorphism classes of $(G, \mathcal{J})$-sets form a commutative semiring $B^+(G, \mathcal{J})$ with identity $1 \in B^+(G, \mathcal{J})$, namely G/G. In this talk we study the properties of the universal ring associated with $B^+(G, \mathcal{J})$.