Representations of G-posets and canonical Brauer induction

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Abstract: We consider finite posets with an action of a finite group G via poset automorphisms. A typical example is the set of all subgroups of G endowed with the conjugation action. There are three different equivalent ways to define representations of a G-poset. The category of such representations turns out to be a highest weight category. Using this set-up for a particular G-poset associated with G, we are able to categorify the canonical Brauer induction formula to a finite projective resolution in the category of representations of this G-poset. Parts of this talk are joint and ongoing work with Nariel Monteiro.