

# Algebraic Computation on Posets of Hypergroups and $H_v$ -groups

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## Abstract.

We first carry out an historical study on the notions of hypergroups and  $H_v$ -groups. Then we present results on the enumeration of  $H_v$ -groups. We obtain the exhaustive list of the  $H_v$ -groups of order 2, then we enumerate and classify the  $H_v$ -groups of order 3, which represent 1.026.462 non-isomorphic entities. Finally a new algorithm enables us to enumerate the abelian  $H_v$ -groups of order 4, which represent 8.028.299.905 non-isomorphic entities. With these enumerative results we construct posets built on sets of hypergroups and  $H_v$ -groups, based on the partial order defined by Th. Vougiouklis.

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