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Kevin M Marshall* (kmarsh729@ku.edu). *A Hopf Monoid on Set Families*. Preliminary report.

We study a Hopf monoid **SetFam** whose underlying objects are arbitrary set families, with product given by join and coproduct defined by a general notion of restriction and contraction, analogous to that for matroids. Of particular interest is the Hopf submonoid **LOI** spanned by families $J(P)$ of order ideals of finite posets P . We present progress on a topological approach, inspired by the work of Aguiar and Ardila on generalized permutahedra, toward a more general cancellation-free formula for the antipode in **LOI**. (Received July 27, 2020)