Partial Characters and Signed Quotient Hypergroups

Margit Rösler and Michael Voit

Abstract. If $G$ is a closed subgroup of a commutative hypergroup $K$, then the coset space $K/G$ carries a quotient hypergroup structure. In this paper, we study related convolution structures on $K/G$ coming from deformations of the quotient hypergroup structure by certain functions on $K$ which we call partial characters with respect to $G$. They are usually not probability-preserving, but lead to so-called signed hypergroups on $K/G$. A first example is provided by the Laguerre convolution on $[0, \infty[$, which is interpreted as a signed quotient hypergroup convolution derived from the Heisenberg group. Moreover, signed hypergroups associated with the Gelfand pair $(U(n, 1), U(n))$ are discussed.