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Evergreen Dr, Sullican 114, Loretto, PA. *A Rees Product for Topological Semihypergroup.*

A semihypergroup is obtained by dropping the requirement of identity and involution from the definition of a hypergroup (DJS). Semihypergroups generalize in many ways topological semigroups. Idempotent measures in locally compact semigroups are supported by a completely simple semigroup. The situation becomes more complex in the case of a semihypergroup where there are examples of idempotent measures on a commutative semihypergroup which are not supported by a completely simple semihypergroup. In analogie with the Rees product for semigroups, we define a Rees convolution product for semihypergroups. It is shown that if  $H$  is a topological hypergroup and  $X, Y$  are two nonempty set then  $XxHxY$  together with the Rees convolution product is a completely simple topological semihypergroup. Moreover every idempotent elements of  $XxHxY$  is in the center of the semihypergroup. Further we prove that  $XxHxY$  is commutative if and only if  $X$  and  $Y$  are singleton and in this case  $XxHxY$  is a hypergroup. In contrast with semigroups cases, we give examples of simple semihypergroups that are not completely simple even for commutative cases. (Received September 18, 2007)