IDEALS OF FUNCTION SPACE IN THE LIGHT OF AN EXPONENTIAL ALGEBRA

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Abstract: Exponential algebra is a new algebraic structure consisting of a semigroup structure, a scalar multiplication, an internal multiplication and a partial order [introduced in [4]]. This structure is based on the structure 'exponential vector space' which is thoroughly developed by Priti Sharma et. al. in [11] [This structure was actually proposed by S. Ganguly et. al. in [1] with the name 'quasi-vector space'] Exponential algebra can be considered as an algebraic ordered extension of the concept of algebra. In the present paper we have shown that the function space $C^+(\mathbf{X})$ of all non-negative continuous functions on a topological space $\mathbf{X}$ is a topological exponential algebra under the compact open topology. Also we have discussed the ideals and maximal ideals of $C^+(\mathbf{X})$. We find an ideal of $C^+(\mathbf{X})$ which is not a maximal ideal in general; actually maximality of that ideal depends on the topology of $\mathbf{X}$. The concept of ideals of exponential algebra was introduced by us in [4].

Keywords and Phrases: Algebra, exponential algebra, function space, ideal, maximal ideal.