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Products of distributions in Colombeau algebra

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Abstract

In this paper, we evaluate some products of distributions in Colombeau algebra of generalized functions. In the classical theory of Schwartz distributions, multiplication of distributions is not defined for two arbitrary singular distributions. The properties of the Colombeau algebra allow us to calculate products of singular distributions which are not defined in the classical theory. The notion of association in Colombeau algebra of generalized functions allows us the results obtained in this way to be considered as products in the classical theory of distributions. The definition of the Colombeau product of distributions can be considered as generalization of their classical product in Schwartz theory.

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