Research Article

Quasimultipliers on F-Algebras

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We investigate the extent to which the study of quasimultipliers can be made beyond Banach algebras. We will focus mainly on the class of F-algebras, in particular on complete k-normed algebras, $0 < k \leq 1$, not necessarily locally convex. We include a few counterexamples to demonstrate that some of our results do not carry over to general F-algebras. The bilinearity and joint continuity of quasimultipliers on an F-algebra A are obtained under the assumption of strong factorability. Further, we establish several properties of the strict and quasistrict topologies on the algebra $QM(A)$ of quasimultipliers of a complete k-normed algebra A having a minimal ultra-approximate identity.

1. Introduction

A quasimultiplier is a generalization of the notion of a left (right, double) multiplier and was first introduced by Akemann and Pedersen in [1, Section 4]. The first systematic account of the general theory of quasimultipliers on a Banach algebra with a bounded approximate identity was given in a paper by McKennon [2] in 1977. Further developments have been made, among others, by Vasudevan and Goel [3], Kassem and Rowlands [4], Lin [5, 6], Dearden [7], Argün and Rowlands [8], Grosser [9], Yılmaz and Rowlands [10], and Kaneda [11, 12].

In this paper, we consider the notion of quasimultipliers on certain topological algebras and give an account, how far one can get beyond Banach algebras, using combination of standard methods. In particular, we are able to establish some results of the above authors in the framework of F-algebras or complete k-normed algebras.