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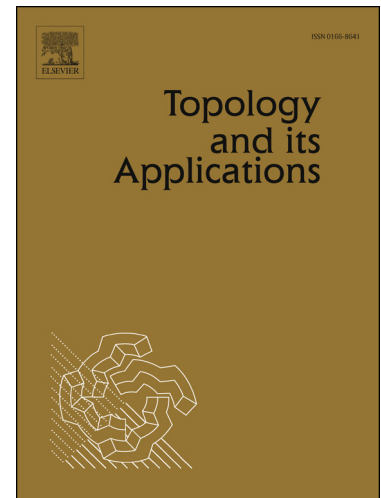
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Completable fuzzy metric spaces

Valentín Gregori^{a,1}, Juan-José Miñana^b, Almanzor Sapena^a

^a *Instituto Universitario de Matemática Pura y Aplicada, Universitat Politècnica de València, Camino de Vera s/n 46022 Valencia (SPAIN).*

^b *Departamento de Ciencias Matemáticas e Informática, Universidad de las Islas Baleares, Carretera de Valldemossa km. 7.5, 07122 Palma (SPAIN)*

Abstract

In the context of fuzzy metrics in the sense of George and Veeramani, we introduce the concept of stratified fuzzy metric. Many well-known fuzzy metrics are stratified. We prove that stratified strong fuzzy metric spaces $(X, M, *)$ are completable, under the assumption that $*$ is integral (positive). In particular, stratified fuzzy ultrametric spaces are completable.

Keywords: Fuzzy metric space, completable fuzzy metric space, strong (non-Archimedean) fuzzy metric space

2010 MSC: 54A40, 54D35, 54E50

1. Introduction

Several notions of fuzzy metric can be found in the literature. Here we deal with the one introduced by George and Veeramani [1, 3]. Among other results the authors prove that every fuzzy metric M on a set X generates a topology τ_M on X , in a similar way to the classical case. Later [2, 10] it was proved that the class of topological spaces which are *fuzzy metrizable* agrees with the class of metrizable spaces. So, many results on classical metric spaces have been stated in the fuzzy metric setting [10, 13, 17]. Other contributions to this theory in the framework of fixed point theory are for instance [16, 18, 20, 21, 22]).

Email addresses: vgregori@mat.upv.es (Valentín Gregori^a), jj.minana@uib.es (Juan-José Miñana^b), alsapie@mat.upv.es (Almanzor Sapena^a)

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