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Semifield planes of order 81. (English) Zbl 1175.12003
J. Geom. 89, No. 1-2, 1-16 (2008).

The semifield planes of dimension 2 over their left nucleus and dimension 4 over their center have been completely classified by *I. Cardinali*, *O. Polverino* and *R. Trombetti* [Eur. J. Comb. 27, No. 6, 940–961 (2006; Zbl 1108.51010)]. This implies that the planes of dimension 2 over one of their nuclei and dimension 4 over their center are all known. Therefore, if the semifield plane has order 81, it was still open the case all nuclei are $\text{GF}(3)$.

In this paper the author gives a complete enumeration of such planes proving that some of them are not previously known. The enumeration has been done with a computer and the comprehensive files in GAP-format can be obtained from the homepage of the author.

Reviewer: [Guglielmo Lunardon \(Naples\)](#)

MSC:

[12K10](#) Semifields

[51A40](#) Translation planes and spreads in linear incidence geometry

Cited in **1** Review
Cited in **16** Documents

Keywords:

[finite semifields](#); [computer enumeration](#)

Full Text: [DOI](#)