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Title: Generalized gyrovector spaces and a Mazur–Ulam theorem

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In this paper we introduce the notion of a generalized gyrovector space. The set of all positive invertible elements in a unital C^* -algebra is an example. We study surjective gyrometric preserving maps and show that such maps also preserve the algebraic structures. As an application we exhibit a structure theorem for maps which preserve the metric of Thompson's type.

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