MEMORIAL UNIVERSITY

Algebra Seminar

The Canonical Quadratic Pair on Clifford Algebras

Speaker

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Wednesday, November 1, 2023

1:00 p.m., HH-3017

Abstract:

Quadratic pairs on central simple algebras over a field were introduced in The Book of Involutions in order to manage the problems which arise with orthogonal involutions in characteristic 2. They are used throughout the book to give a characteristic-free treatment of semisimple groups of type D. However, a notable exception occurs in the final chapters on triality where the base field is assumed to be of characteristic different from 2. The authors make this assumption because, as they write, "we did not succeed in giving a rational definition of the quadratic pair on [the Clifford algebra]." This problem was recently solved by Dolphin and Quéguiner-Mathieu, who defined the canonical quadratic pair while working over fields of characteristic 2. We will review the basic definitions and properties of quadratic pairs and Clifford algebras and then describe the construction of the canonical pair on Clifford algebras. We will outline the key properties which earn it the name "canonical". Time permitting, we will discuss the extension of these notions to Clifford algebras over a scheme where the naïve generalization of Dolphin and Quéguiner-Mathieu's construction requires some modification.