

# NON-ASSOCIATIVE FROBENIUS ALGEBRAS FOR SIMPLE ALGEBRAIC GROUPS

JARI DESMET

Abstract: Recently, Maurice Chayet and Skip Garibaldi have introduced a class of  $G$ -equivariant commutative non-associative Frobenius algebras, for each simple linear algebraic group  $G$  over an arbitrary field of large enough characteristic. We are able to give an explicit description of these algebras for groups of type  $G_2$  and  $F_4$  in terms of the octonion algebras and the Albert algebras, respectively.

It had already been observed by Chayet and Garibaldi that the automorphism group for the algebras for type  $F_4$  is equal to the group of type  $F_4$  itself (and nothing more). Using our new description, we are able to show that the same result holds for type  $G_2$ .