

# Rings of constants of linear derivations on Fermat rings

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It is well known how hard is to describe the ring of constants of an arbitrary derivation as well to decide if the ring of constants of a derivation is trivial. In this talk we deal with  $\mathbb{C}$ -derivations of a ***Fermat ring***

$$B_n^m = \frac{\mathbb{C}[X_1, \dots, X_n]}{(X_1^{m_1} + \dots + X_n^{m_n})},$$

where  $\mathbb{C}[X_1, \dots, X_n]$  is the polynomial ring in  $n$  variables over the complex numbers  $\mathbb{C}$ ,  $n \geq 3$ ,  $m = (m_1, \dots, m_n) \in \mathbb{Z}^n$ , and  $m_i \geq 2$  for  $i = 1, \dots, n$ . Specifically, we study the ring of constants of linear derivations on Fermat rings and its locally nilpotent derivations. We present a description of all the linear  $\mathbb{C}$ -derivations and provide examples of linear derivations with trivial ring constants for certain Fermat rings.