

# NUMBER OF IRREDUCIBLE POLYNOMIAL OF THE FORM $F(X^R)$

LAYS GRAZIELLE CARDOSO SILVA DE JESUS

LAYS.GRAZIELLE@UFRR.BR

DEPARTAMENTO DE MATEMÁTICA/CENTRO DE CIÊNCIAS E TECNOLOGIA  
UNIVERSIDADE FEDERAL DE RORAIMA  
BOA VISTA, RORAIMA, BRASIL

ABSTRACT. Let  $\mathbb{F}_q$  be the finite field with  $q$  elements. In this lecture, we present an expression to count the number of irreducible polynomials of the form  $f(x^r)$  in  $\mathbb{F}_q$ . We will show that there is a relationship between the number of irreducible polynomials of the form  $f(x^r)$  and the number of elements  $\alpha \in \mathbb{F}_q$  in an extent of the field  $F_q$  for which the binomial  $x^r - \alpha$  is irreducible.

This is a joint work with Fabio Enrique Brochero Martínez-UFMG.

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*Palavras-chave:* irreducible polynomials, binomials irredutíveis, Moebius.