

## **Computation and Analysis of the Multidimensional Linear Complexity of Periodic Arrays**

Rafael Arce, Carlos Hernández, José Ortiz, Ivelisse Rubio, Jaziel Torres\*, University of Puerto Rico at Rio Piedras

Sequences and multidimensional periodic arrays with entries in finite fields have important applications in coding theory and cryptography. The linear complexity of the sequences and multidimensional arrays are important parameters for many applications, especially those related to information security and hardware implementation. We compute and provide conjectures on the multidimensional linear complexity of families of multidimensional arrays. We also prove an exact formula for the linear complexity of arrays derived from Legendre sequences.

Keywords: linear complexity, multidimensional arrays, periodic arrays