

Abstract

In this talk, we propose a novel definition of perfect LRCs whose size exactly achieves the Hamming-type bound. By the parity-check matrix approach, we establish some important connections between the existence of LRCs and the existence of some subsets of finite geometry and finite fields with certain properties, respectively. By employing q -Steiner systems and sunflowers in projective geometry and difference sets in finite fields, we obtain two new constructions of perfect LRCs with flexible parameters and we also present several new constructions of k -optimal LRCs achieving another Hamming-type bound under the integers restriction.