

**Extensions of the Carlitz–McConnel and Blokhuis–Sziklai theorems**

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This is joint work with Shamil Asgarli and Maosheng Xiong.

In this talk, I will discuss two beautiful theorems, one due to Carlitz–McConnel and the other due to Blokhuis–Sziklai. I will discuss their rich connections with algebraic graph theory, arithmetic combinatorics, finite geometry, group theory, and number theory. I will also highlight some recent extensions of these theorems.