

Search for new APN functions is an important topic in symmetric cryptography. The matrix approach for constructing quadratic APN functions was described by Y. Yu, M. Wang and Y. Li in 2014. The approach takes advantage of the one to one correspondence between quadratic homogenous APN functions and quadratic APN matrices. The aim of this thesis is to explain the matrices used in the original paper and show that similar matrices can be constructed directly from the algebraic normal form of the APN function. In Chapter 2 we introduce the original method adding extra theorems and expanding the proofs for better understanding. In Chapter 3 we define the matrices obtained simply from the algebraic normal form. In Chapter 4 we give examples of the matrices for chosen APN functions and show how they are related.