

**AFFINE EQUIVALENCE OF QUADRATIC ROTATION
SYMMETRIC FUNCTIONS $f_{n,s} + f_{n,s+j}$**

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Abstract

The affine equivalence of quadratic Boolean functions can determine the weight and nonlinearity. In order to obtain affine equivalence of odd variables quadratic rotation symmetric function which contains two MRS functions $f_{n,i}$ and $f_{n,j}$, we discuss the recursive equivalent formula of $f_{n,s} + f_{n,s+j}$. First, when t satisfies $s \equiv 1(mod t)$, we give the recursive formula of $f_{n,s} + f_{n,s+j}$ by corresponding non-singular affine transformation. Furthermore, we also give the recursive formula of $f_{n,s} + f_{n,s+t}$ for $j = 1, 2, 3$.

Key Words : *Boolean function, Rotation symmetric Boolean function, Recursive formula, Affine equivalent, MRS function*

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