

The article has interesting results. This paper proposes a hybrid method combining search and direct construction of involutory MDS matrices in a finite field. The authors also conduct experiments to find these matrices, in addition, they also evaluate the number of XOR operations of the found matrices and compare with other works.

However, the authors need to correct the following comments.

- In the Introduction, the authors should introduce some other methods to build MDS matrix such as: circulant matrix, circulant-like matrix, and recursive MDS matrix.
- Lines 175-176, the authors should change to “The following are properties of an MDS matrix.”
- Line 187, should edit “ $a_i s$ ” => “ $a_i' s$ ”.
- Line 198, edit “ $b_i s$ ” => “ $b_i' s$ ”.
- With the representative involutory MDS matrix size  $2 \times 2$ , the authors proved in Lemma 3, and showed that the matrix  $RIM_{2 \times 2}$  is the representative involutory MDS matrix of size  $2 \times 2$ . With size  $4 \times 4$ , the authors give the matrix  $R_1$  as an involutory MDS matrix of size  $4 \times 4$  and prove it through Lemma 6, however, it is necessary to put the matrix  $R_1$  in front of Lemma 6.