

论文

## THE LINEAR KERNEL OF BOOLEAN FUNCTIONS AND PARTIALLY-BENT FUNCTIONS

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**摘要** We will give the definition of the linear kernel of boolean functions and prove that, by a reversible linear transformation, any linear structure boolean function can be transformed into a boolean function which is linear to some variables, is non-relative to some variables and is of non-linear structure to other variables; any Partially-Bent Function can be transformed into a boolean function which is linear to some variables, is nonrelative to some variables and is bent to other variables. We will also discuss the Walsh Spectral Characterization of Partially-Bent Functions.

**关键词** [Partially-Bent Functions, Walsh spectral](#)

分类号

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**Abstract** We will give the definition of the linear kernel of boolean functions and prove that, by a reversible linear transformation, any linear structure boolean function can be transformed into a boolean function which is linear to some variables, is non-relative to some variables and is of non-linear structure to other variables; any Partially-Bent Function can be transformed into a boolean function which is linear to some variables, is nonrelative to some variables and is bent to other variables. We will also discuss the Walsh Spectral Characterization of Partially-Bent Functions.

**Key words** [Partially-Bent Functions](#) [Walsh spectral](#) [linear kernel](#)

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