METHOD AND APPARATUS FOR ENCODING POLAR CODE, AND METHOD AND APPARATUS FOR DECODING POLAR CODE

ABSTRACT

This application provides a method and an apparatus for encoding a polar code, and a method and an apparatus for decoding a polar code, to reduce decoding complexity and improve a decoding speed. The encoding method includes: obtaining information bits; adjusting an original kernel matrix to construct one or more kernel matrices, and selecting an appropriate target kernel matrix from the one or more kernel matrices; and performing polar encoding on the information bits based on the target kernel matrix. According to the encoding method, when the kernel matrix is constructed or selected, performance and decoding complexity are comprehensively considered, so that decoding complexity can be reduced by selecting the appropriate kernel matrix used during encoding. The decoding method includes: obtaining a to-be-decoded sequence; and decoding the to-be-decoded sequence based on a plurality of trellises, where intermediate results obtained in different decoding stages may be reused. For example, in a $(t+i)^{th}$ stage of decoding, an intermediate result obtained in a tth stage of decoding is reused. According to the decoding method, decoding complexity is greatly reduced.

FIG. 13