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(54) Title: POLAR CODE ENCODING METHOD AND APPARATUS

(54) 发明名称: 极化码的编码方法及装置

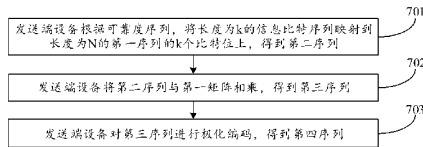


图 7

701 On the basis of a reliability sequence, a sending-end device maps an information bit sequence having a length of k onto k bits of a first sequence having a length of N , so as to obtain a second sequence
702 The sending-end device multiplies the second sequence by a first matrix, so as to obtain a third sequence
703 The sending-end device performs polarization encoding on the third sequence, so as to obtain a fourth sequence

(57) Abstract: A polar code encoding method and apparatus, which relate to the technical field of communications, and enable information bit sequences of different sizes to construct polar codes on the basis of the same reliability sequence and the same first matrix, thereby reducing the hardware complexity and improving the decoding performance. The method comprises: on the basis of a reliability sequence having a length of N , mapping an information bit sequence having a length of k onto k bits of a first sequence having a length of N , so as to obtain a second sequence comprising k information bits, x PC bits and $N-k-x$ frozen bits; multiplying the second sequence by a first matrix, so as to obtain a third sequence; and performing polarization encoding, so as to obtain a fourth sequence, wherein $k \leq K \leq N$; $1 \leq x$; K is the maximum value of the length of the information bit sequence; k , K , N and x are all positive integers; the elements below the diagonals of the first matrix are all 0; the elements on the diagonals are all 1; the column weight of a column in the first matrix which corresponds to the PC bits is greater than 1; the column weight of a column corresponding to the frozen bits or the information bits is equal to 1; and the number of columns having a column weight greater than 1 is less than or equal to $N-K$.

(57) 摘要: 一种极化码的编码方法及装置, 涉及通信技术领域, 能够使不同数目的信息比特序列基于相同的可靠度序列和第一矩阵构造极化码, 降低硬件复杂度, 提升译码性能。该方法包括: 根据长度为 N 的可靠度序列, 将长度为 k 的信息比特序列映射到长度为 N 的第一序列的 k 个比特位上, 得到包括 k 个信息位、 x 个 PC 位和 $N-k-x$ 个冻结位的第二序列, 将第二序列与第一矩阵相乘, 得到第三序列, 并进行极化编码, 得到第四序列。 $k \leq K \leq N$, $1 \leq x$, K 为信息比特序列的长度的最大值, k 、 K 、 N 、 x 均为正整数, 第一矩阵的对角线以下全为 0, 对角线全为 1, 第一矩阵中与 PC 位对应的列的列重大于 1, 与冻结位或信息位对应的列的列重等于 1, 列重大于 1 的列数小于或等于 $N-K$ 。

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