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论文

多个序列综合问题的新模型及其应用

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摘要
本文提出新的数学模型, 用来刻划序列的综合问题, 并将其推广, 揭示了可用Gröbner基理论解决序列的综合问题, 并得到有效的算法, 从而成功地开辟了解决多个序列综合问题的新途经. 本文另一重要结果是给出了J. Justesen等构造的一类代数几何码(JAG码)的有效译码算法, 此算法是Euclid算法的非平凡推广.

关键词 序列综合 齐次理想 Grö bner基 代数几何码 错误位置多项式

分类号

SYNTHESIS OF MULTISEQUENCES AND THEIR APPLICATIONS

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Abstract
A new mathematical model, the linear homogeneous equations with polynomial coefficients for describing the synthesis problem, is presented in this paper. It gives a nature approach ro generalize the linear synthesis to nonlinear case. This method is used ro obtain a new solution for the multisequence synthesis. The Gröbner bases theory in polynomial ring is used to present an efficient algorithm for the mathematical model. This turns out to be a generalization of Euclid algorithm. However, the new one has much brilliant prospects. As one of the important results, it is discovered that the new algorithm can be used to deduce an efficient decoding algorithm for a class of algebraic geometry codes constructed by Justesen, so the important open problem is solved.

Key words Synthesis of sequence Homogeneous ideal Grö bner base Algebra geometry code Error-locator polynomial

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