Contribution ID: **84**   Type: **not specified**

Computing Gröbner and Involutive Bases for Linear Systems of Difference Equations

Friday, 7 July 2017 13:45 (15 minutes)

In this paper the author will talk about the problem of computing involutive bases and Gröbner bases of linear systems of difference equations, its importance, applicability for physical and mathematical problems and the algorithm for solving it.

An implementation of the computation algorithm in C will be presented, calculation times will be compared with the competing programs. The parallel version of this implementation and its scalability will be considered.

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Session Classification: Computer Algebra and Quantum Computing with Applications (II)