

Symmetries and Integrability of Difference Equations

Fact Sheet

Project Information		
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		Coordinated by Type of Event: Euro Conference France

Objective

Difference equations and discrete systems play an important role in the mathematical sciences and have formed a field of research that attracts an increasing number of scientists. It is a fascinating mixture of pure and applied mathematics and physics, with ideas and methods taken from various areas, making it a pluridisciplinary activity. A number of remarkable developments have taken place in recent years, in particular the systematic construction of integrable partial difference equations and the discovery of discrete analogies of the famous Painlevé equations. These results have given a big impetus to the subject, which is now connected to a variety of fields,

including numerical analysis, cellular automata, q-special functions, symplectic maps, representations of quantum groups.

The current proposal is for a series of two meetings on "Symmetries and integrability" of difference equations". There has been a series of very successful biannual meetings with the same title [held in Canada (1994), Great Britain (1996), Italy (1998) and Japan (2000)], and the subject has matured through these events. The series we are proposing here is different in style, our emphasis is on reviewing the progress that has been made in recent years, consolidating the results and putting forward new methods for resolving open problems. This approach will be particularly useful for young researchers who are just entering the field. The objective of the first meeting is to reach a classification of discrete (difference) equations of the Painlevé type by confronting the various existing approaches to the problem, and give a coherent definition of "integrability" for discrete systems. This entails in particular the construction of a fully developed theory of symmetries of difference equations. The objective of the second meeting is to give a sound basis to a theory of "quantum special functions" and "quantum geometry". The main emphasis will lie in the linear theory of difference equations and its quantum connections, in particular the general problem of classifying commuting difference operators, the general theory of guantum systems on the (space-time) lattice, and the analytic theory of linear difference operators.

Fields of science (EuroSciVoc)

natural sciences > physical sciences > quantum physics

natural sciences > mathematics > pure mathematics > geometry

natural sciences > mathematics > applied mathematics > numerical analysis

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Programme(s)

<u>FP5-HUMAN POTENTIAL - Programme for research, technological development and demonstration on</u> <u>"Improving the human research potential and the socio-economic knowledge base" (1998-2002)</u>

Topic(s)

1.4.1.-3.1S6 - Mathematical and Information Sciences

Call for proposal

Data not available

Funding Scheme

ACM - Preparatory, accompanying and support measures

Coordinator

Type of Event: Euro Conference

EU contribution

No data

Total cost

No data

Address

This event takes place in Giens (near Toulon)

France

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