

FRÉDÉRIC FAUVET

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Introduction

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Introduction

The Conference “*Resurgence, Alien Calculus, Resummability, Transseries*” took place from November 18th to 22nd, 2002 at the CIRM (Centre International de Rencontres Mathématiques – French Mathematical Society) in Marseille, France.

More than 70 participants exchanged ideas in a stimulant atmosphere and about 25 lectures were given, part of which gave rise to the written texts contained in this Volume. The contributions have all been individually refereed.

This Conference was focused on giving the state of the art about various theories developed by Jean Ecalle in the last 25 years, while taking into account recent results in domains ranging from dynamical systems to algebraic combinatorics. The following subjects have been tackled:

Analytic classification of real and complex dynamical systems; Ambiguities in the resummation of divergent series; Real resummation; Transseries solutions of dynamical systems in one or several variables; The combinatorics of moulds and comoulds, in particular in the context of the determination of relations between multizeta values (MZV); The ARI Lie algebra; Computer algebra and mould calculus.

Though centered on Jean Ecalle’s achievements, other approaches or methods in related questions were also considered:

WKB method; Exact semi-classical asymptotics; Differential Galois theory; q -difference equations (asymptotics, symmetries); Multisummability of formal series solutions of dynamical systems.

We express our deep gratitude to Anne Duval, Robert Moussu and Jean-Pierre Ramis who have supported this meeting and constituted its Scientific Committee.

Jean Ecalle has from the start been enthusiastic about our project and shared with us his ideas: we thank him heartily.

We address many thanks to the Editorial Board of the *Annales de la Faculté des Sciences de Toulouse*.

It is also a pleasure to acknowledge our gratitude to the following institutions that contributed financially to this Conference: the CIRM, the Observatoire de Paris, the Institut Universitaire de France (J.-P. Ramis), the European TMR “Holomorphic Foliations”, the Universities of Dijon, Lille, Strasbourg and Toulouse.

Frédéric Fauvet and David Sauzin