

Preface

This volume is based on nine series of lectures presented at the Abecedarian School on Symmetries and Integrability of Difference Equations (ASIDE). The school took place at the Centre de recherches mathématiques, Université de Montréal, June 27–July 1, 2016. It was followed by an international meeting on the same subject, SIDE 12, held in Sainte-Adèle, Québec, Canada, July 33–9, 2016.

The SIDE meetings take place every two years since 1994 and it has become a tradition that a school precedes these meetings. The school is aimed at graduate students, postdoctoral fellows and other early career researchers (ECRs) to prepare them for full participation in the actual meeting.

Lecturers at summer schools are usually famous or at least distinguished senior scientists; the participants are usually ECRs. The ASIDE schools break with this tradition. The lecturers and the students at the school were ECRs. The idea, originally proposed by ECRs at the SIDE 8 meeting in 2008, was that this would encourage a more informal atmosphere, make it easier to ask questions and have in-depth discussions. A previous ASIDE school together with the SIDE 10 meeting took place near Shanghai in 2012. This is the first time that ASIDE lectures are published. They were carefully refereed by experts in the field.

The topics treated in each of the nine lecture series coincide with those treated in the nine sessions of SIDE 12. The ASIDE lecturers were proposed by the session organizers and were usually current or former graduate students or postdoctoral fellows of the session organizers. Thus they all had in-depth and up-to-date knowledge of the field they were lecturing on. The fact that their knowledge was recently acquired meant that the lecturers were well aware of the difficulties they had encountered. This was a great advantage from the pedagogical point of view.

The consensus was that the ASIDE experiment was a successful one. Most of the participants stayed for the SIDE 12 meeting and contributed to and benefitted from both events.

There were 95 participants at SIDE 12, 56 at ASIDE with a large overlap between the two. Both SIDE 12 and ASIDE were made possible by generous support from the NSF, the CRM and the UMI/CRNS.

Each of these lectures is an introduction to the corresponding SIDE session and we are sure that they are of permanent value. The volume should be useful both to beginners entering into the field and to seasoned practitioners.

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