Contents

Preface ix
List of Participants xi
Percy Deift at integer times
Carlos Tomei 1
Birkhoff normal form for the periodic Toda lattice
Andreas Henrici and Thomas Kappeler 11
Asymptotics of a Class of Operator Determinants with Application to the Cylindrical Toda Equations
Harold Widom 31
Connection formulas for the third Painlevé transcendent in the complex plane
V. Yu. Novokshenov 55
Nonlinear Fourier Transforms and Integrability in Multidimensions
A. S. Fokas 71
Numerical study of a multiscale expansion of Korteweg-de Vries and Camassa-Holm equation
Tamara Grava and Christian Klein 81
Long-time asymptotics of the Camassa-Holm equation on the line
Anne Boutet de Monvel and Dmitry Shepelsky 99
Semiclassical Focusing Nonlinear Schrödinger equation in the pure radiation case: Riemann-Hilbert Problem approach
Alexander Tovbis, Stephanos Venakides, and Xin Zhou 117
From Stationary Phase to Steepest Descent
Spyridon Kamvissis 145
Riemann-Hilbert Problems with Lots of Discrete Spectrum
Peter D. Miller 163
Locating the zeros of partial sums of $e^z$ with Riemann-Hilbert methods
T. Kriecherbauer, A. B. J. Kuijlaars, K. D. T-R McLaughlin, and P. D. Miller 183
Two variable Deformations of the Chebyshev measure
Jeffrey S. Geronimo and Plamen Iliev 197
Hankel determinant and orthogonal polynomials for the Gaussian weight with a jump

A. Its and I. Krasovsky

Orthogonal Polynomials, Jacobi Matrices and Random Matrices

L. Pastur

Universality in unitary random matrix ensembles when the soft edge meets the hard edge

Tom Claeys and Arno B.J. Kuijlaars

A new approach to universality limits at the edge of the spectrum

D. S. Lubinsky

On the gap probability generating function at the spectrum edge in the case of orthogonal symmetry

P. J. Forrester

An interpolation between Airy and Pearcey processes

Mark Adler and Pierre van Moerbeke

The universal Airy$_1$ and Airy$_2$ processes in the Totally Asymmetric Simple Exclusion Process

Patrik L. Ferrari

On some special directed last-passage percolation models

Kurt Johansson

Discrete spacetime and its applications

Eitan Bachmat

The Arctic Circle Revisited

F. Colomo and A. G. Pronko

Moduli of continuity and average decay of Fourier transforms: two-sided estimates

Dimitri Gioev

Eigenvalues of Schrödinger Operators in Gaps of the Essential Spectrum — an Overview

Rainer Hempel

Transition Measures for the Stochastic Burgers Equation

Jonathan C. Mattingly and Toufic M. Suidan

Some open problems in random matrix theory and the theory of integrable systems

Percy Deift