

RIMS Kôkyûroku Bessatsu B87

*Mathematical structures of integrable systems,
its deepening and expansion*

September 9 ~11, 2019

edited by Takao Suzuki

August, 2021

Research Institute for Mathematical Sciences

Kyoto University, Kyoto, Japan

The papers presented in this volume of RIMS Kôkyûroku Bessatsu are in final form and refereed.
©2021 by the Research Institute for Mathematical Sciences, an International Joint Usage/Research
Center located in Kyoto University. All rights reserved. Printed in Japan.

Preface

This volume is the proceedings of the conference “Mathematical structures of integrable systems, its deepening and expansion” which was held at the Research Institute for Mathematical Sciences (RIMS) of Kyoto University from September 9 to September 11, 2019. The aim of the conference was to connect researchers working on classical or quantum integrable systems with professions working on various mathematical objects such as combinatorics, applied mathematics, algebraic geometry, number theory, etc. There were 13 lectures and 60 participants during the conference. It is my pleasure that this volume collects 11 contributions from the speakers. All papers have been refereed and are in their final forms.

I would like to express my gratitude to all participants, invited speakers and RIMS secretaries who have made the conference successful. I also appreciate the helps of anonymous referees.

August, 2021
Takao Suzuki

Program

RIMS Workshop 2019

Mathematical structures of integrable systems, its deepening and expansion

RIMS 共同研究（公開型）2019
「可積分系数理の深化と展開」

September 9 (Mon)

- 13:40 – 14:30 執行 洋子
KP 階層のタウ関数の展開係数について
- 14:40 – 15:30 渋川 元樹
補間 Jack 多項式の高階差分方程式
- 15:50 – 16:40 大野 泰生
多重ゼータ値の母関数について

September 10 (Tue)

- 9:30 – 10:20 中田 庸一
超離散常差分方程式の初期値問題の多面体を用いた計算
- 10:30 – 11:20 高崎 金久
3次ホッジ積分の可積分構造
- 11:40 – 12:30 岩木 耕平
Painlevé τ -関数と位相的漸化式
- 1:40 – 14:30 前田 一貴
箱玉系と非自励離散戸田格子
- 14:40 – 15:30 竹縄 知之
いくつかの4次元パンルヴェ方程式系の初期値空間
- 15:50 – 16:40 野海 正俊
楕円 Ruijsenaars 差分作用素の形式的固有函数

September 11 (Wed)

- 10:30 – 11:20 渡邊 扇之介
Max-plus ウォーク ～超離散版量子ウォークの構築～
- 11:30 – 12:20 木村 嘉之
量子冪単胞の量子捻り自己同型と双対標準基底
- 13:40 – 14:30 山田 泰彦
因子化されたラックス行列の対称性
- 14:40 – 15:30 津田 照久
Mutation Combinatorics in Cluster Algebras and q -Painlevé Equations

Contents

Preface	i
Program	ii
Articles	
Yoko SHIGYO, On the expansion coefficients of Tau-functions of the KP hierarchy	1
Genki SHIBUKAWA, Higher order difference equations for interpolation Jack polynomials	7
Yasuo OHNO, 多重ゼータ値の関係式と母関数 (Relations among multiple zeta values and related generating functions)	27
Yoichi NAKATA, The solution to the initial value problem for the ultradiscrete Somos-4 and 5 equations	39
Kanehisa TAKASAKI, Integrable structures of specialized hypergeometric tau functions	57
前田一貴 (Kazuki MAEDA), 箱玉系と非自励離散戸田格子 (Box-ball system and the nonautonomous discrete Toda lattice)	79
Tomoyuki TAKENAWA, Space of initial conditions for the four-dimensional Fuji-Suzuki-Tsuda system	99
Edwin LANGMANN, 野海正俊 (Masatoshi NOUMI), 白石潤一 (Junichi SHIRAISHI), 楢円 Ruijsenaars 差分作用素の形式的固有函数 (Formal eigenfunctions for the elliptic Ruijsenaars difference operators)	113
Senosuke WATANABE, Akiko FUKUDA, Etsuo SEGAWA and Iwao SATO, Limit theorem of the max-plus walk	125
朴佳南 (Kanam PARK), 山田泰彦 (Yasuhiko YAMADA), 因子化されたラックス行列の対称性 (Symmetry of factorized Lax matrices)	135
Tetsu MASUDA, Naoto OKUBO and Teruhisa TSUDA, Cluster algebras and higher order generalizations of the q -Painlevé equations of type $A_7^{(1)}$ and $A_6^{(1)}$	149

RIMS Kôkyûroku Bessatsu

- B 7 2 Algebraic Number Theory and Related Topics 2015
- B 7 3 The study of the history of mathematics 2018
- B 7 4 Harmonic Analysis and Nonlinear Partial Differential Equations
- B 7 5 New development of microlocal analysis and singular perturbation theory
- B 7 6 On the examination and further development of inter-universal Teichmüller theory
- B 7 7 Algebraic Number Theory and Related Topics 2016
- B 7 8 Mathematical structures of integrable systems and their applications
- B 7 9 Stochastic Analysis on Large Scale Interacting Systems
- B 8 0 Regularity, singularity and long time behavior for partial differential equations with conservation law
- B 8 1 Study of the History of Mathematics 2019
- B 8 2 Regularity and Asymptotic Analysis for Critical Cases of Partial Differential Equations
- B 8 3 Algebraic Number Theory and Related Topics 2017
- B 8 4 Inter-universal Teichmüller Theory Summit 2016
- B 8 5 Study of the History of Mathematics 2020
- B 8 6 Algebraic Number Theory and Related Topics 2018

RIMS Kôkyûroku Bessatsu
Vol. B87

2021年8月発行

発行所 京都大学数理解析研究所
印刷所 明文舎印刷株式会社
