

数理解析研究所講究録 2101

RIMS 共同研究 (公開型)

超局所解析と漸近解析

京都大学数理解析研究所

2019年2月

数理解析研究所講究録は、京都大学数理解析研究所の共同利用研究集会および共同研究の記録として1964年に刊行が開始されました。当研究所が全国共同利用研究所として発足した翌年のことでしたが、以来半世紀、毎年数十巻を刊行し、2016年には第2000巻が刊行されるに至りました。第1巻から第2000巻までに収録された論文数は29,265編、総頁数は342,960頁という膨大なものであり、最先端の数学・数理科学分野の研究状況を伝えるのみならず、我が国の数学・数理科学の発展の歴史を留める文献として、他に類例を見ない論文集となっています。

講究録の内容は当研究所のウェブサイトおよび京都大学の学術情報リポジトリにおいても公開され、年間の総アクセス数は1,380,032回（2017年度）を数えるなど、多数の方にご利用いただいています。

講究録の使用言語は論文著者の判断に任されていますが、結果的に日本語が多用されていることが特徴の一つとなっています。その結果、講究録は、数学・数理科学の広い領域における最先端の専門知識に母国語でアクセスできるものとして、近年の英語化の流れの中で、重要な文献となりつつあります。

当研究所の共同利用事業に参加し講究録の論文を執筆していただいた多数の方々に対し、講究録を大きく成長させていただいたことを深く感謝いたしますとともに、これからも、当研究所の国際共同利用・共同研究拠点(*)としての活動にご参加いただき、講究録の発展にご協力いただけますよう心よりお願い申し上げます。

*数理解析研究所は2018年11月13日、共同利用・共同研究拠点の認定が廃止され、新しく国際共同利用・共同研究拠点に認定されました。

RIMS Kôkyûroku 2101

Microlocal analysis and asymptotic analysis

October 16 ~ 20, 2017

edited by Yasunori Okada, Naofumi Honda and Susumu Yamazaki

February, 2019

Research Institute for Mathematical Sciences

Kyoto University, Kyoto, Japan

This is a report of research done at the Research Institute for Mathematical Sciences,
an International Joint Usage/Research Center located in Kyoto University.
The papers contained herein are in final form and will not be submitted for publication elsewhere.

講究録

Kôkyûroku

RIMS Kôkyûroku was started in 1964 as the proceedings of symposia, colloquia and workshops supported by RIMS, the Research Institute for Mathematical Sciences, Kyoto University. It was the next year of the establishment of RIMS as one of the Nationwide Cooperative Research Centers. For half a century since then, several dozen volumes have been issued each year, and the 2,000th volume was issued in 2016. The volumes of Kôkyûroku from the 1st through the 2,000th, containing enormous 29,265 articles and 342,960 pages, not only deliver the latest research activities in mathematics and mathematical sciences but also constitute valuable and incomparable collections of articles that pass down history of progress of mathematics and mathematical science in Japan.

Articles in Kôkyûroku are available on the websites of RIMS and Kyoto University Research Information Repository. They are very frequently accessed on the internet, with a total of as many as 1,380,032 accesses in 2017.

The authors choose the languages to write articles, and many are written in Japanese, which is one of the characteristics of Kôkyûroku. As a result, Kôkyûroku is regarded as a significant and important literature which allows easy access to the latest specialized knowledge in the large fields of mathematics and mathematical sciences written in native language for Japanese readers, while more and more research papers are being written in English in recent years.

We are deeply grateful to many of those who have participated in cooperative research activities of RIMS and greatly developed Kôkyûroku. We heartily ask for your continuous participation in research activities at RIMS as an International Joint Usage/Research Center(*) and your warm support and cooperation for the fruitful development of Kôkyûroku.

* RIMS was certified as an International Joint Usage/Research Center on Nov. 13, 2018.

RIMS 共同研究 (公開型)
超局所解析と漸近解析



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2017年10月16日(月) ~ 20日(金)
京都大学数理解析研究所 111号室

プログラム

October 16, Monday

- 10:00 - 10:50 Toshinori Takahashi (Kindai University)
The confluent hypergeometric function and WKB solutions
- 11:10 - 12:00 Shofu Uchida (Kindai University)
Linear continuous operators acting on the space of entire functions of a given order
- 13:40 - 14:30 Kunio Ichinobe (Aichi University of Education)
Experimental observation on k -summability of divergent solutions of the heat equation with $k > 1$
(a joint work with M. Miyake)
- 14:50 - 15:40 Yumiko Takei (Kobe University)
On expressions of Voros coefficients for hypergeometric differential equations in terms of the topological recursion
- 16:00 - 16:50 Takashi Aoki (Kindai University)
Exact WKB analysis of the Gauss hypergeometric function

October 17, Tuesday

- 10:00 - 10:50 Yasumori Okada (Chiba University)
On the solvability of a coupling equation for PDEs of Briot-Bouquet type
- 11:10 - 12:00 Susumu Yamazaki (Nihon University)
Nearby and Vanishing Cycles of Fuchsian D-Modules
- 13:40 - 14:30 Keisuke Uchikoshi (National Defense Academy)
Singularities of gravity water waves
- 14:50 - 15:40 Kiyoomi Kataoka (the University of Tokyo)
Some remarks on Hayato Chiba's theory about Kuramoto conjecture
- 16:00 - 16:50 Tatsuo Suwa (Hokkaido University)
Relative Dolbeault cohomology and Sato hyperfunctions

October 18, Wednesday

- 10:00 - 10:50 Kohei Umeta (Nihon University)
Laplace hyperfunctions from the viewpoint of Čech-Dolbeault cohomology
(a joint work with N. Honda)

- 11:10 - 12:00 Naofumi Honda (Hokkaido University)
Application of the theory of Čech-Dolbeault cohomology to operations on hyperfunctions
(a joint work with T. Izawa and T. Suwa)
- 13:40 - 14:30 Joe Kamimoto (Kyushu University)
Failure of meromorphy for local zeta functions
- 14:50 - 15:40 Sampei Hirose (Shibaura Institute of Technology), Takahiro Kawai (RIMS) and Yoshitsugu Takei (Doshisha University)
On virtual turning points originating from a non-hereditary turning point
- 16:00 - 16:50 Yoshitsugu Takei (Doshisha University)
Some recent topics in the exact WKB analysis related to the exact steepest descent method

October 19, Thursday

- 10:00 - 10:50 Jun Yamamoto (Shibaura Institute of Technology) and Hiroshi Yamazawa (Shibaura Institute of Technology)
 q -analogue of a system of equation from geometry
- 11:10 - 12:00 Hidetoshi Tahara (Sophia University)
Some examples of the Borel summability of formal solutions of linear partial differential equations
- 13:40 - 14:30 Masafumi Yoshino (Hiroshima University)
Movable Singularity of Hamiltonian System and Blowup of Semi linear Wave Equation
- 14:50 - 15:40 Saiei-Jaeyeong Matsubara-Heo (the University of Tokyo)
On Laplace and Euler integral representations of GKZ hypergeometric functions
- 16:00 - 16:50 Toshio Oshima (Josai University)
Transformation of KZ type equations

October 20, Friday

- 10:00 - 10:50 Naoto Kumano-go (Kogakuin University)
Phase space Feynman path integrals of parabolic type with functional derivatives
- 11:10 - 12:00 Takeshi Morita (Osaka University)
On some divergent bilateral basic hypergeometric series and connection formulae
- 13:40 - 14:30 Toshinori Oaku (Tokyo Woman's Christian University)
An attempt to compute holonomic systems for Feynman integrals in two-dimensional space-time
- 14:50 - 15:40 Shinichi Tajima (University of Tsukuba)
A method for computing generic Lê numbers associated with hypersurface non-isolated singularities

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超局所解析と漸近解析
Microlocal analysis and asymptotic analysis
RIMS 共同研究 (公開型) 報告集
2017年10月16日~10月20日

研究代表者 岡田 靖則 (Yasunori Okada)
副代表者 本多 尚文 (Naofumi Honda)
副代表者 山崎 晋 (Susumu Yamazaki)

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