OP–SF NET – Volume 29, Number 3 – May 15, 2022

The Electronic News Net of the
SIAM Activity Group on Orthogonal Polynomials and Special Functions

http://math.nist.gov/opsf

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Editors:
Howard S. Cohl howard.cohl@nist.gov
Sarah Post spost@hawaii.edu

Topics:
1. Announcement: Complex Analysis, Spectral Theory and Approximation meet in Linz
2. Announcement: Article on the History of the Relativistic Schrödinger Equation
3. Book Description for: *Theta functions, elliptic functions and π* (2020) by **Heng Huat Chan**
5. Preprints in arXiv.org
7. Thought of the Month by **Vladimir Arnold**

Calendar of Events:

May 23–27, 2022
Baylor Analysis Fest: From Operator Theory to Orthogonal Polynomials, Combinatorics, and Number Theory
Baylor University, Waco, TX, USA
https://tinyurl.com/BAFconference

May – November, 2022
Symmetries: Algebras and Physics
Thematic Semester, includes the following workshops:
   May 23–June 10, 2022
      Non–commutative algebras, representation theory and special functions
   July 25–August 19, 2022
      Graph theory, Algebraic combinatorics and mathematical physics
   September 12–October 7, 2022
      Integrable systems, exactly solvable models and algebras
Dear colleagues!

The conference “Complex Analysis, Spectral Theory and Approximation meet in Linz” aims to bring together experts in Complex Analysis, Spectral Theory and Approximation and provide a framework for scientific exchange related to those topics. The event, which was initially planned in 2020 and postponed due to the Covid pandemic will eventually take place in a hybrid format through Johannes Kepler Universität, Linz.

**Conference dates:** July 3–8, 2022

**Conference homepage:** [link](https://www.jku.at/institut-fuer-analysis/konferenzen/complex-analysis/)

**Registration Deadline for on-site participation:** June 15

The conference program consists of invited talks and a poster session.

The list of plenary speakers is:

- Alexander Aptekarev
- Roman Bessonov
- Jacob Christiansen
- David Damanik
- Sergey Denisov
From: Sergei Suslov (sergei@asu.edu)
Subject: Announcement: Article on the History of the Relativistic Schrödinger Equation

Article:
Discovery of the Relativistic Schrödinger equation
by Kamal Barley, José Vega-Guzmán, Andreas Ruffing, and Sergei K. Suslov

Journal:
Physics–Uspekhi, IOP Publishing, January 2022, Volume 65, Number 1, Pages 90–103

Abstract:
We discuss the discovery of the relativistic wave equation for a spin–zero charged particle in the Coulomb field by Erwin Schrödinger (presumably during the Christmas holidays 1925–26). However, in this new approach, an essential discrepancy was found with the fine structure formula for the energy levels already obtained by Sommerfeld in the framework of the ‘old’ quantum mechanics. As a result, Schrödinger had to withdraw the original ‘relativistically framed’ article, a draft of which has never been found, from a journal and start all over with his centennial article on the nonrelativistic stationary Schrödinger equation. Our goal here is to follow the original ‘relativistic idea’ from a modern mathematical viewpoint and elaborate on why Schrödinger didn’t publish it. We hope that this consideration will encourage the readers to study quantum physics starting from one of the crucial moments of its creation.

Contents:
1. Introduction
2. Introducing the relativistic Schrödinger equation
3. Solving the relativistic Schrödinger equation
4. Further treatment: nonrelativistic approximation
Goal:
We hope that this consideration, despite potential imperfections, will encourage the readers to study quantum physics starting at one of the crucial moments of its creation and draw their own conclusions.

This article has appeared on the IOP website: 
https://iopscience.iop.org/journal/1063-7869
and
https://iopscience.iop.org/article/10.3367/UFNe.2021.06.039000
in the history of physics series.

This article made it on the top of the most read list with a total 579 downloads after just four weeks online.

The History of Physics series had in the past great authors, such as P.A.M. Dirac:
https://iopscience.iop.org/article/10.1070/PU1979v022n08ABEH005593
and F.J. Dyson:
https://iopscience.iop.org/article/10.3367/UFNe.0180.201008f.0859
among others.

From: OP–SF Net Editors
Subject: Book Description for: Theta functions, elliptic functions and π (2020) by Heng Huat Chan

It may be of interest to some members of the OPSFA mailing list to know about the following recently published book:

“Theta functions, elliptic functions and π”, in the De Gruyter Textbook series:
https://doi.org/10.1515/9783110541915.

Heng Huat Chan, Department of Mathematics, National University of Singapore, Singapore, Republic of Singapore

This book presents several results on elliptic functions and π, using Jacobi’s triple product identity as a tool to show surprising connections between different topics within number theory such as theta functions, Eisenstein series, the Dedekind delta function, and Ramanujan’s work on π. The included exercises make it ideal for both classroom use and self-study.

- A pedagogical presentation of elliptic functions, modular forms and Ramanujan’s work on π.
- Connects several parts of number theory through Jacobi’s triple product identity.
- Includes exercises, making it also suitable for self-study.
When one peruses the offerings of mathematics book publishers, one finds a large variety of text books at the undergraduate level, and also at the advanced level for upper-level graduate students and researchers. However, few books are “in between.” Theta functions, elliptic functions and π falls “in between.” This book, focusing on certain classical topics related to number theory, provides a stepping stone to both the past and future. The topics are chosen both for their elegance and their usefulness. The ubiquitous theta functions play the leading role. They form relationships to elliptic functions, sums of squares, partitions, hypergeometric functions, q-series, and infinite series representations for 1/π. This book is valuable, because some of its topics do not appear in any of the courses taught by large, major universities. But it is even more valuable because it is inspirational. As you read it, you will exclaim, “What a beautiful theorem!” or “What an elegant proof!” or “What an interesting problem!” (and, indeed, there are many challenging exercises). Read with enjoyment!

The following is the foreword written by Bruce Berndt, reprinted with permission.

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This book review by Daniele Ritelli was originally published by the American Mathematical Society (AMS) as the review MR42028036 in Mathematical Reviews/MathSciNet. It is reprinted here by permission of the AMS.

The main objective of this textbook is to provide an accessible introduction to the Theta functions, which constitute a fundamental chapter in the theory of elliptic functions and, more generally, of special functions, usually mastered by specialists in the field and this is evidenced by the fact that the reference texts in this field are starting from the classic and monumental manual of Whittaker and Watson’s A Course of Modern Analysis of which it is worth mentioning the recent republication [MR4286926], Pi and the AGM of the Borwein brothers [MR1641658] and finally the monograph Ramanujan’s theta functions [MR3675178] of Shaun Cooper are, inevitably, extremely specialized level. On the other hand, the author proposes to approach these topics, quote from the introduction, by bridging, preparing the reader by gradually introducing him to hypergeometric series, theta functions, elliptic functions and modular forms.

My opinion is that the aim of the text is fully successful, allowing the reader to appreciate the many identities presented in the text, starting with Ramanujan’s famous series for \( \frac{1}{\pi} \), and at the same time to continue his or her journey by approaching the aforementioned specialised texts.

This book review by Franz Lemmermeyer was originally published by zbMATH Open as the review an:1458.11002 which is available under the CC BY-SA 4.0 license.

This book covers contributions by Euler, Jacobi, Eisenstein, Gauss and Ramanujan: Euler’s special case of the \( q \)-binomial theorem, Jacobi’s triple product formula, Jacobi’s theta functions, Jacobi elliptic functions, Eisenstein series, Ramanujan’s series for \( \frac{1}{\pi} \), and Gauss’s theory of the arithmetic–geometric mean. The choice of topics is guided by the aim of making the book J. M. Borwein and P. B. Borwein [Pi and the AGM. A study in analytic number theory and computational complexity. New York, NY: John Wiley (1987; Zbl 0611.10001)] accessible to students familiar with basic complex analysis. The present book is similar in spirit to M. D. Hirschhorn’s equally charming [The power of \( q \). A personal journey. Cham: Springer (2017; Zbl 1456.11001)] – I highly recommend both books.

The following preprints related to the fields of orthogonal polynomials and special functions were posted or cross-listed to one of the subcategories of arXiv.org during March and April 2022. This list has been separated into two categories.
http://arxiv.org/abs/2203.00243
Lattice paths, vector continued fractions, and resolvents of banded Hessenberg operators
Abey López–García, Vasily A. Prokhorov

http://arxiv.org/abs/2203.00498
Eigenfunctions of the van Diejen model generated by gauge and integral transformations
F. Atai, M. Noumi

http://arxiv.org/abs/2203.01204
Generalised symmetries and bases for Dunkl monogenics
Hendrik De Bie, Alexis Langlois–Rémillard, Roy Oste, Joris Van der Jeugt

http://arxiv.org/abs/2203.01419
Electrostatic partners and zeros of orthogonal and multiple orthogonal polynomials
Andrei Martínez–Finkelshtein, Ramón Orive, Joaquín Sánchez–Lara

http://arxiv.org/abs/2203.01739
Indefinite $q$–integrals from a method using $q$–Ricatti equations
G. E. Heragy, Z. S. I. Mansour, K. M. Oraby

http://arxiv.org/abs/2203.02273
The eigenvector–eigenvalue identity for the quaternion matrix with its algorithm and computer program
Yuchao He, Mengda Wu, Y–H. Xia

http://arxiv.org/abs/2203.02675
An alternate proof for a case of a Malmsten integral
Abdulhafiz A. Abdulsalam

http://arxiv.org/abs/2203.03039
Landau–Ginzburg mirror, quantum differential equations and qKZ difference equations for a partial flag variety
Vitaly Tarasov, Alexander Varchenko

http://arxiv.org/abs/2203.03318
Higher–order recurrence relations, Sobolev–type inner products and matrix factorizations
Carlos Hermoso, Edmundo J. Huertas, Alberto Lastra, Francisco Marcellán

http://arxiv.org/abs/2203.03589
Euler–Kronecker constants for cyclotomic fields
Letong Hong, Ken Ono, Shengtong Zhang

http://arxiv.org/abs/2203.03777
A class of Bernstein–type operators on the unit disk
Marlon J. Recarte, Misael E. Marriaga, Teresa E. Pérez

http://arxiv.org/abs/2203.03855
A new Approach to fully degenerate Bernoulli numbers and polynomials
Taekyun Kim, Dae San Kim
http://arxiv.org/abs/2203.04966
Linear-Time and Constant-Space Algorithms to compute Multi-Sequences that arise in Enumerative Combinatorics (and Elsewhere)
Shalosh B. Ekhad, Doron Zeilberger

http://arxiv.org/abs/2203.05202
Schmidt–type theorems for partitions with uncounted parts
George E. Andrews, William J. Keith

http://arxiv.org/abs/2203.05631
On the general family of third–order shape–invariant Hamiltonians related to generalized Hermite polynomials
Ian Marquette, Kevin Zelaya

http://arxiv.org/abs/2203.06134
Gegenbauer expansions and addition theorems for a binomial and logarithmic fundamental solution of the even–dimensional Euclidean polyharmonic equation
Howard S. Cohl, Jessie E. Hirtenstein, Jim Lawrence, Lisa Ritter

http://arxiv.org/abs/2203.07132
Szegő condition, scattering, and vibration of Krein strings
R. Bessonov, S. Denisov

http://arxiv.org/abs/2203.07863
An asymptotic approximation for the Riemann zeta function revisited
R. B. Paris

http://arxiv.org/abs/2203.09421
Point Source Equilibrium Problems with Connections to Weighted Quadrature Domains
Peter D. Dragnev, Alan R. Legg, Edward B. Saff

http://arxiv.org/abs/2203.09426
D–brane masses at special fibres of hypergeometric families of Calabi–Yau threefolds, modular forms, and periods
Kilian Bönisch, Albrecht Klemm, Emanuel Scheidegger, Don Zagier

http://arxiv.org/abs/2203.10025
Sharp estimates for the hypergeometric functions related to root systems of type $\mathfrak{A}$ and of rank 1
Piotr Graczyk, Patrice Sawyer

http://arxiv.org/abs/2203.10526
Hankel Determinant and Orthogonal Polynomials for a Perturbed Gaussian Weight: from Finite $n$ to Large $n$ Asymptotics
Chao Min, Yang Chen

http://arxiv.org/abs/2203.10955
Chebyshev polynomials in the 16th century
Walter Van Assche

http://arxiv.org/abs/2203.11348
Openness of Regular Regimes of Complex Random Matrix Models
Marco Bertola, Pavel Bleher, Roozbeh Ghosakhloo, Kenneth T–R McLaughlin, Alexander Tovbis
A universal lower bound for certain quadratic integrals of automorphic $L$–functions
Laurent Clozel, Peter Sarnak

Oscillatory banded Hessenberg matrices, multiple orthogonal polynomials and random walks
Amilcar Branquinho, Ana Foulquié–Moreno, Manuel Mañas

On generalizations of discrete and integral Cauchy–Bunyakovskii inequalities by the method of mean values. Some applications
S. M. Sitnik

Bailey pairs and strange identities
Jeremy Lovejoy

New orthogonality relations for super–Jack polynomials and an associated Lassalle–Nekrasov correspondence
Martin Hallnäs

Christoffel functions for multiple orthogonal polynomials
Grzegorz Świderski, Walter Van Assche

Combinatorics of Triangular Partitions
François Bergeron, Mikhail Mazin

Global asymptotics of the sixth Painlevé equation in Okamoto’s space
Viktoria Heu, Nalini Joshi, Milena Radnović

Exactly solvable anharmonic oscillator, degenerate orthogonal polynomials and Painlevé II
Marco Bertola, Eduardo Chavez–Heredia, Tamara Grava

Progressive approximation of bound states by finite series of square–integrable functions
A. D. Alhaidari

Refinements of Beck–type partition identities
Tewodros Amdeberhan, George E. Andrews, Cristina Ballantine

A generalization of certain associated Bessel functions in connection with a group of shifts
J. Choi, I. A. Shilin

Telescoping continued fractions for the error term in Stirling’s formula
Gaurav Bhatnagar, Krishnan Rajkumar
http://arxiv.org/abs/2204.01021
Malmsten's integral and some related results: A different approach with Special functions
Abdulhafeez A. Abdulsalam

http://arxiv.org/abs/2204.01045
When does a hypergeometric function $pF_q$ belong to the Laguerre–Pólya class $LP^+$?
Alan D. Sokal

http://arxiv.org/abs/2204.02535
Schmidt Type Partitions
Runqiao Li, Ae Ja Yee

http://arxiv.org/abs/2204.04625
Gap probability for the hard edge Pearcey process
Dan Dai, Shuai–Xia Xu, Lun Zhang

http://arxiv.org/abs/2204.04706
Moment sequences and difference equations
Paweł J. Szabłowski

http://arxiv.org/abs/2204.05505
Lattice paths and negatively indexed weight–dependent binomial coefficients
Josef Küstner, Michael J. Schlosser, Meesue Yoo

http://arxiv.org/abs/2204.05647
Combinatorial identities and hypergeometric series
Enno Diekema

http://arxiv.org/abs/2204.05696
Positive definite functions on a regular domain
Martin Buhmann, Yuan Xu

http://arxiv.org/abs/2204.05801
Generalized quadratic commutator algebras of PBW–type
Ian Marquette, Luke Yates, Peter Jarvis

http://arxiv.org/abs/2204.06220
Product Inequalities for Multivariate Gaussian, Gamma, and Positively Upper Orthant Dependent Distributions
Dominic Edelmann, Donald Richards, Thomas Royen

http://arxiv.org/abs/2204.08228
Human and automated approaches for finite trigonometric sums
Jean–Paul Allouche, Doron Zeilberger

http://arxiv.org/abs/2204.09305
Recent Advances in Asymptotic Analysis
R. Wong, Yu–Qiu Zhao

http://arxiv.org/abs/2204.09306
On the $\nu$–zeros of the Bessel functions of purely imaginary order
R. B. Paris
Two General Series Identities Involving Modified Bessel Functions and a Class of Arithmetical Functions
Bruce C. Berndt, Atul Dixit, Rajat Gupta, Alexandru Zaharescu

Some remarks and conjectures about Hankel determinants of polynomials which are related to Motzkin paths
Johann Cigler

Parameter and \( q \)–asymptotics of \( \mathcal{L}_q \)–norms of hypergeometric orthogonal polynomials
Nahual Sobrino, Jesús Sanzhez–Dehesa

Multiple orthogonal polynomials, \( d \)–orthogonal polynomials, production matrices, and branched continued fractions
Alan D. Sokal

Sums of Distances on Graphs and Embeddings into Euclidean Space
Stefan Steinerberger

Quasi–polynomial representations of double affine Hecke algebras
Siddhartha Sahi, Jasper Stokman, Vidya Venkateswaran

Characterization of Orthogonal Polynomials on lattices
D. Mbouna, Juan F. Mañas–Mañas, Juan J. Moreno–Balcázar

Other Relevant OP–SF E–Prints

A geometrical point of view for branching problems for holomorphic discrete series of conformal Lie groups
Quentin Labriet

Generalized hypergeometric \( G \)–functions take linear independent values
Sinnou David, Noriko Hirata–Kohno, Makoto Kawashima

From boxes to polynomials: a story of generalisation
Gypsy Akhyar, Yifan Guo, Lihexuan Yuan

Extension of Irreducibility results on Generalised Laguerre Polynomials \( L_n^{(-1-n-s)}(x) \)
Saranya G. Nair, Tarlok Nath Shorey
On minima of difference of theta functions and application to hexagonal crystallization
Senping Luo, Juncheng Wei

Apéry–Type Series with Summation Indices of Mixed Parities and Colored Multiple Zeta Values, II
Ce Xu, Jianqiang Zhao

E–Polynomials of Generic GLₙ,〈σ〉–Character Varieties: Unbranched Case
Cheng Shu

Computing zeta functions of algebraic curves using Harvey’s trace formula
Madeleine Kyng

A real variable calculus for planar orthogonal polynomials
Haakan Hedenmalm, Aron Wennman

Analytic expressions for some Mellin transforms with their application to prime counting function
and interpolation formulas for the zeta function
Omprakash Atale

Double Exponential method for Riemann Zeta, Lerch and Dirichlet L–functions
Sandeep Tyagi

Rational solutions of Painlevé–II equation as Gram determinant
Liming Ling, Bing–Ying Lu, Xiaoen Zhang

Random walks on crystal lattices and multiple zeta functions
Takahiro Aoyama, Ryuya Namba

Mixed–norm of orthogonal projections and analytic interpolation on dimensions of measures
Bochen Liu

Cone Vertex Algebras, Mock Theta Functions, and Umbral Moonshine Modules
Miranda C. N. Cheng, Gabriele Sgroi

Product formulas for hypergeometric functions over finite fields
Noriyuki Otsubo, Takato Senoue

Some multivariable Rado numbers
Gang Yang, Yaping Mao, Changxiang He, Zhao Wang
Two conjectures for Macdonald polynomials: The stretching symmetry and Haglund’s conjecture
Seung Jin Lee, Jaeseong Oh, Brendon Rhoades

Anosov Flows and Dynamical Zeta Functions (Errata)
Paolo Giulietti, Mark Pollicott, Carlangelo Liverani

Skew–invariant curves and the algebraic independence of Mahler functions
Alice Medvedev, Khoa Dang Nguyen, Thomas Scanlon

A Riemann–Hilbert approach to the modified Camassa–Holm equation with step–like boundary conditions
Iryna Karpenko, Dmitry Shepelsky, Gerald Teschl

A family of orthogonal polynomials corresponding to Jacobi matrices with a trace class inverse
Pavel Stovicek

Estimates for the largest critical value of \( T_n^{(k)} \)
Nikola Naidenov, Geno Nikolov

Commentary on \( Sp(6) \) hypergeometric groups
Jitendra Bajpai

Lee–Yang zeroes of the Curie–Weiss ferromagnet, unitary Hermite polynomials, and the backward heat flow
Zakhar Kabluchko

Euler–MacLaurin summation formula on polytopes and expansions in multivariate Bernoulli polynomials
Luca Brandolini, Leonardo Colzani, Bianca Gariboldi, Giacomo Gigante, Alessandro Monguzzi

Joint asymptotic expansions for Bessel functions
David A. Sher

Definite orthogonal modular forms: Computations, Excursions and Discoveries
Eran Assaf, Dan Fretwell, Colin Ingalls, Adam Logan, Spencer Secord, John Voight

Analogies of Jacobi’s formula
Keiji Matsumoto
http://arxiv.org/abs/2203.07674
Return probability of quantum and correlated random walks
Chusei Kiumi, Norio Konno, Shunya Tamura

http://arxiv.org/abs/2203.07701
t-adic symmetric multiple zeta values for indices in which 1 and 3 appear alternately
Minoru Hirose, Hideki Murahara, Shingo Saito

http://arxiv.org/abs/2203.07797
Wigner- and Marchenko-Pastur-type limits for Jacobi processes
Martin Auer, Michael Voit, Jeannette H.C. Woerner

http://arxiv.org/abs/2203.07963
On the spherical clothoid
Alexandru Ionut

Partitions, Multiple Zeta Values and the $q$–bracket
Henrik Bachmann, Jan-Willem van Ittersum

http://arxiv.org/abs/2203.09290
New estimates for some integrals of functions defined over primes
Christian Axler

http://arxiv.org/abs/2203.09302
Change of Basis from Bernstein to Zernike
D. A. Wolfram

http://arxiv.org/abs/2203.09787
A New Probabilistic Representation of the Alternating Zeta Function and a New Selberg–like Integral Evaluation
Serge Iovleff

http://arxiv.org/abs/2203.09977
Non–Abelian Toda lattice and analogs of Painlevé III equation
V. E. Adler, M. P. Kolesnikov

http://arxiv.org/abs/2203.10531
Approximation and Interpolation of Singular Measures by Trigonometric Polynomials
Paul Catala, Mathias Hockmann, Stefan Kunis, Markus Wageringel

http://arxiv.org/abs/2203.11342
Finite–part integral representation of the Riemann zeta function at odd positive integers and consequent representations
Eric A. Galapon

http://arxiv.org/abs/2203.11488
Derived Zeta Functions for Curves over Finite Fields
Lin Weng

http://arxiv.org/abs/2203.11588
The Lie coalgebra of multiple polylogarithms
Zachary Greenberg, Dani Kaufman, Haoran Li, Christian K. Zickert
Chebyshev’s Bias against Splitting and Principal Primes in Global Fields
Miho Aoki, Shin-ya Koyama

Chebyshev’s Bias for Ramanujan’s τ-function via the Deep Riemann Hypothesis
Shin-ya Koyama, Nobushige Kurokawa

Polynomial description for the T–Orbit Spaces of Multiplicative Actions
Evelyne Hubert, Tobias Metzlaff, Cordian Riener

Resurgent Stokes Data for Painlevé Equations and Two-Dimensional Quantum (Super) Gravity
Salvatore Baldino, Ricardo Schiappa, Maximilian Schwick, Roberto Vega

An elementary proof of a recursive formula for ζ(2n)
Tom Moshaiov

Weighted Sum Formulas from Shuffle Products of Multiple Zeta–star Values
Kwang-Wu Chen, Minking Eie

Integrality in the Matching–Jack conjecture and the Farahat–Higman algebra
Houcine Ben Dali

Amalgamating the real Gamma and Zeta functions
Jean–Philippe Rolin, Tamara Servi, Patrick Speissegger

A proof of the $\frac{n!}{2^n}$ conjecture for hook shapes
Sam Armon

New Proofs of Some Double Sum Rogers–Ramanujan Type Identities
Liuquan Wang

Zeta functions in higher Teichmüller theory
Mark Pollicott, Richard Sharp

$q$–Rational Reduction and $q$–Analogues of Series for $\pi$
Rong–Hua Wang, Michael X. X. Zhong

A disintegration of the Christoffel function
Jean–Bernard Lasserre
Explicit Class number formulas for Siegel–Weil averages of ternary quadratic forms
Ben Kane, Daejun Kim, Srimathi Varadharajan

Singular asymptotics for the Clarkson–McLeod solutions of the fourth Painlevé equation
Jun Xia, Shuai–Xia Xu, Yu–Qiu Zhao

On Prime Numbers and The Riemann Zeros
Lucian M. Ionescu

Turán inequalities from Chebyshev to Laguerre polynomials
Bernhard Heim, Markus Neuhauser, Robert Troeger

From asymptotic to closed forms for the Keiper/Li approach to the Riemann Hypothesis
André Voros

Elliptic soliton solutions: τ functions, vertex operators and bilinear identities
Xing Li, Da–jun Zhang

Integrality and some evaluations of odd multiple harmonic sums
Zhonghua Li, Zhenlu Wang

Mock theta functions and characters of $N = 3$ superconformal modules II
Minoru Wakimoto

On Ramanujan expansions and primes in arithmetic progressions
Maurizio Laporta

On the growth of generalized Fourier coefficients of restricted eigenfunctions
Madelyne M. Brown

Singular integral operators, $T_1$ theorem, Littlewood–Paley theory and Hardy spaces in Dunkl Setting
Chaoqian Tan, Yanchang Han, Yongsheng Han, Ming–Yi Lee, Ji Li

Some explicit estimates for the error term in the prime number theorem
Daniel R. Johnston, Andrew Yang

Mean value theorems for the Apostol–Vu double zeta–function and its application
Yuichiro Toma
Periodic solutions of the non–chiral intermediate Heisenberg ferromagnet equation described by elliptic spin Calogero–Moser dynamics
Bjorn K. Berntson, Rob Klabbers

A gyroscopic polynomial basis in the sphere
Abram C. Ellison, Keith Julien, Geoffrey M. Vasil

Density results for the zeros of zeta applied to the error term in the prime number theorem
Andrew Fiori, Habiba Kadiri, Joshua Swidinsky

A contribution to the mathematical theory of diffraction. Part I: A note on double Fourier integrals
Raphaël C. Assier, Andrey V. Shanin, Andrey I. Korolkov

Sum of the Hurwitz–Lerch Zeta Function over Prime Numbers: Derivation and Evaluation
Robert Reynolds, Allan Stauffer

A New Diffusive Representation for Fractional Derivatives and its Application
Kai Diethelm

Boundedness of differential transforms for Poisson semigroups generated by Bessel operators
Chao Zhang

Congruence Relations Connecting Tate–Shafarevich Groups with Bernoulli–Hurwitz Numbers by Elliptic Gauss Sums in Eisenstein Case
Akihiro Goto

A note on “exotic integrals”
Anton A. Kutsenko

Recurrence relations of coefficients involving hypergeometric function with an application
Zhen–Hang Yang

Computing zeta functions of table algebra orders using the Bushnell–Reiner integral approach
Angelica Babei, Allen Herman

An interpolation of the generalized duality formula for the Schur multiple zeta values to complex functions
Maki Nakasuji, Yasuo Ohno, Wataru Takeda
Trace Expansions and Equivariant Traces on an Algebra of Fourier Integral Operators on $\mathbb{R}^n$
Anton Savin, Elmar Schrohe

The ASEP speed process
Amol Aggarwal, Ivan Corwin, Promit Ghosal

Lie Symmetries, Painlevé analysis and global dynamics for the temporal equation of radiating stars
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Matheus Brito, Vyjayanthi Chari, Deniz Kus, R. Venkatesh

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Higher rank thin monodromy in $O(5)$
Jitendra Bajpai, Martin Nitsche

Algebraicity modulo $p$ of generalized hypergeometric series $\sum_{n=1}^{F_{n-1}}$
Daniel Vargas Montoya

On the Use of $L$–functionals in Regression Models
Ola Hössjer, Måns Karlsson

Extreme values of derivatives of zeta and $L$–functions
Daodao Yang

The $\alpha$–points of the Riemann zeta–function and the functional equation
Athanasios Sourmelidis, Jörn Steuding, Ade Irma Suriajaya

The eighth moment of the Riemann zeta function
Nathan Ng, Quanli Shen, Peng–Jie Wong

Topic #6 —— OP – SF Net 29.3 —— May 15, 2022

From: OP–SF Net Editors
Subject: Submitting contributions to OP–SF NET and SIAM–OPSF (OP–SF Talk)

To contribute a news item to OP–SF NET, send e–mail to one of the OP–SF Editors
howard.cohl@nist.gov, or spost@hawaii.edu.

Contributions to OP–SF NET 29.4 should be sent by July 1, 2022.

OP–SF NET is the electronic newsletter of the SIAM Activity Group on Special Functions and Orthogonal Polynomials (SIAG/OPSF). We disseminate your contributions on anything of interest to the special functions and orthogonal polynomials community. This includes announcements of conferences, forthcoming books, new software, electronic archives, research questions, and job openings as well as news about new appointments, promotions, research visitors, awards and prizes. OP–SF Net is transmitted periodically through a post to OP–SF Talk which is currently managed and
moderated by Howard Cohl (howard.cohl@nist.gov). Anyone wishing to be included in the mailing list (SIAG/OPSF members and non-members alike) should send an email expressing interest to him. Bonita Saunders also posts the Newsletter through SIAM Engage (SIAG/OPSF) which is received by all SIAG/OPSF members.

OP–SF Talk is a listserv associated with SIAG/OPSF which facilitates communication among members, non-members and friends of the Activity Group. To post an item to the listserv, send e-mail to howard.cohl@nist.gov.

WWW home page of this Activity Group:
http://math.nist.gov/opsf
Information on joining SIAM and this activity group: service@siam.org

The elected Officers of the Activity Group (2020–2022) are:
   Peter Alan Clarkson, Chair
   Luc Vinet, Vice Chair
   Andrei Martínez-Finkelshtein, Program Director
   Teresa E. Pérez, Secretary and SIAM Engage (SIAG/OPSF) moderator

The appointed officers are:
   Howard Cohl, OP–SF NET co-editor
   Sarah Post, OP–SF NET co-editor
   Bonita Saunders, Webmaster and SIAM Engage (SIAG/OPSF) moderator

Topic #7    OP – SF Net 29.3     May 15, 2022

From: OP–SF Net Editors
Subject: Thought of the Month by Vladimir Arnold

“Not even mentioning the relative character of initial axioms, one cannot forget about the inevitability of logical mistakes in long arguments (say, in the form of a computer breakdown caused by cosmic rays or quantum oscillations). Every working mathematician knows that if one does not control oneself (best of all by examples), then after some ten pages half of all the signs in formulae will be wrong and twos will find their way from denominators into numerators. ”


Contributed by Daniel Lichtbau