

OP-SF NET – Volume 28, Number 4 – July 15, 2021

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

<http://math.nist.gov/opsf>

OP-SF Net was previously distributed through [OP-SF Talk](#).

Subscriptions are currently **on hold** but please contact the editors if you wish to subscribe.
Please send contributions to the OP-SF Net editors.

Editors:

Howard S. Cohl

howard.cohl@nist.gov

Sarah Post

spost@hawaii.edu

Topics:

1. Announcement: **Atul Dixit** wins **Gábor Szegő** Prize 2021
2. Report on ITSF special issue for OPSFA15
3. Preprints in arXiv.org
4. Submitting contributions to OP-SF NET and SIAM-OPSF (OP-SF Talk)
5. Thought of the Month by **Barry Simon**

Calendar of Events:

July 19–24, 2021

Mathematical Congress of the Americas (MCA 2021)

Special Session on *Special Functions and Orthogonal Polynomials*

Organized by Diego Dominici, Luis E. Garza, Jan Felipe van Diejen

Buenos Aires, Argentina—**virtual**

<http://www.mca2021.org/en>

January 10–14, 2022

9th International Conference on Computational Methods and Function Theory (CMFT 2021)

Federico Santa María Technical University, Valparaíso, Chile

<http://cmft2021.inf.utfsm.cl/>

June 20–24, 2022

Combinatorics around the q -Onsager algebra, celebrating the 65th birthday of Paul Terwilliger
Kranjska Gora, Slovenia

<https://conferences.famnit.upr.si/event/15/overview>

August 2022

OPSFA Summer School 2021

Radboud University, Nijmegen, The Netherlands

<https://www.ru.nl/radboudsummerschool/courses/2021/opsfa-summer-school/>

June 13–17, 2022—new dates due to coronavirus pandemic.

OPSFA-16

Centre de Recherches Mathématiques, Montréal, Quebec, Canada

http://www.crm.umontreal.ca/2022/OPSFA22/index_e.php

July 5–8, 2022—new dates due to coronavirus pandemic.

Functional Analysis, Approximation Theory and Numerical Analysis (FAATNA)

Matera, Italy

<http://web.unibas.it/faatna20/>

Topic #1 ——— OP – SF Net 28.4 ——— July 15, 2021

From: Peter Clarkson (P.A.Clarkson@kent.ac.uk)

Subject: Announcement: **Atul Dixit** wins **Gábor Szegő** Prize 2021

I'm pleased to announce that the [Gábor Szegő Prize 2021](#) is awarded to Dr. Atul Dixit for his impressive scientific work solving problems related to number theory using special functions, in particular related to the work of Ramanujan. Atul did his PhD in Mathematics at the University of Illinois at Urbana–Champaign and his advisor was Bruce C. Berndt. Currently Atul is an Associate Professor in the Discipline of Mathematics at the Indian Institute of Technology Gandhinagar, India.

It is planned that the Gábor Szegő prize will be given to Atul at the OPSFA16 conference which is due to take place in Montréal, Canada in 2022.

The Gábor Szegő Prize 2021 committee was comprised of Kerstin Jordaan (University of South Africa), Adri Olde Daalhuis (University of Edinburgh, UK), Sarah Post (University of Hawaii), Yuan Xu (University of Oregon) and myself (chair).

Topic #2 ——— OP – SF Net 28.4 ——— July 15, 2021

From: Walter Van Assche (walter.vanassche@kuleuven.be)

Subject: Report on ITSF special issue for OPSFA15

Special issue: **OPSFA15 in Integral Transforms and Special Functions**

The 15th International Symposium on Orthogonal Polynomials, Special Functions and Applications (OPSFA15) was held in Hagenberg, Austria, from July 22 to July 26, 2019:

<https://www3.risc.jku.at/conferences/opsfa2019/>

The proceedings of this conference are now published as a special issue in [Integral Transforms and Special Functions](#). This special issue is in volume 32, in which numbers 5–8 are all part of the special issue. The guest editors are Galina Filipuk, Christoph Koutschan, Francisco Marcellán and Walter Van Assche, who wrote the introduction of the special issue (with a group picture taken at the conference). There are 20 refereed papers containing work presented at the conference, and of course the topics are orthogonal polynomials and their extensions (11 papers), special functions (4 papers), and applications (5 papers).

Introduction

- Special issue OPSFA15: orthogonal polynomials, special functions and applications (Galina Filipuk, Christoph Koutschan, Francisco Marcellán, Walter Van Assche), Pages: 333–335.

Research Articles

- Voros coefficients of the Gauss hypergeometric differential equation with a large parameter (T. Aoki, T. Takahashi, M. Tanda), Pages: 336–345.
- Interlacing of zeros of Laguerre polynomials of equal and consecutive degree (J. Arvesú, K. Driver, L. Littlejohn), Pages: 346–360.
- Multiple q -Kravchuk polynomials (J. Arvesú, A. M. Ramírez–Aberasturis), Pages: 361–376.
- Strong asymptotics of Jacobi-type kissing polynomials (A. B. Barhoumi), Pages: 377–394.
- Recurrence relations for Wronskian Laguerre polynomials (N. Bonneux, M. Stevens), Pages: 395–406.
- Discrete Hahn-classical d -orthogonal polynomials (H. Chaggara, N. Ayadi), Pages: 407–436.
- Fourier series for coherent pairs of Jacobi measures (Óscar Ciaurri, Judit Mínguez Cenicerros), Pages: 437–457.
- A generalized sextic Freud weight (Peter A. Clarkson, Kerstin Jordaan), Pages: 458–482.
- On differential systems related to generalized Meixner and deformed Laguerre orthogonal polynomials (Anton Dzhamay, Galina Filipuk, Alexander Stokes), Pages: 483–492.
- Logarithmic asymptotic of multi-level Hermite–Padé polynomials (L. G. González Ricardo, G. López Lagomasino, S. Medina Peralta), Pages: 493–511.
- Construction of modular function bases for $\Gamma_0(121)$ related to $p(11n+6)$ (Ralf Hemmecke, Peter Paule, Cristian–Silviu Radu), Pages: 512–527.
- Matrix hypergeometric functions, semi-classical orthogonal polynomials and quantum Painlevé equations (Kouki Inamasu, Hironobu Kimura), Pages: 528–544.
- Limit relations involving 2-orthogonal polynomials (I. Lamiri, J. Weslati), Pages: 545–559.
- Hyponormal Toeplitz operators on weighted Bergman spaces (Trieu Le, Brian Simanek), Pages: 560–567.
- Symmetric differential operators for Sobolev orthogonal polynomials of Laguerre- and Jacobi-type (Clemens Marktner), Pages: 568–587.
- On matrix Cauchy biorthogonal polynomials (S. Medina Peralta), Pages: 588–603.
- Non-homogeneous wave equation on a cone (Sheehan Olver, Yuan Xu), Pages: 604–619.
- The complex moment problem of Dirichlet type (Franciszek Hugon Szafraniec, Michał Wojtylak), Pages: 620–631.
- On the WKB theoretic transformation to the boosted Airy equation (T. Takahashi), Pages: 632–646.
- Voros coefficients and the topological recursion for the hypergeometric differential equation of type $(1, 4)$ (Yumiko Takei), Pages: 647–659.

The Gábor Szegő prize was awarded in 2019 to Thomas Bothner and his talk at OPSFA15 was the basis of a nice review paper in *Nonlinearity*, which is open access:

- On the origins of Riemann–Hilbert problems in mathematics (Thomas Bothner), *Nonlinearity* 34 (2021), nr. 4, Pages R1–R73.

From: OP–SF Net Editors
Subject: Preprints in arXiv.org

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 May and June 2021. This list has been separated into two categories.

OP–SF Net Subscriber E–Prints

<http://arxiv.org/abs/2105.00614>

An urn model for the Jacobi–Piñeiro polynomials
F. Alberto Grünbaum, Manuel D. de la Iglesia

<http://arxiv.org/abs/2105.00660>

Shifted Hankel determinants of Catalan numbers and related results
Johann Cigler

<http://arxiv.org/abs/2105.00686>

The asymptotic expansion of the Bernoulli polynomials of the second kind
R. B. Paris

<http://arxiv.org/abs/2105.01758>

On the k -measure of partitions and distinct partitions
George E. Andrews, Shane Chern, Zhitai Li

<http://arxiv.org/abs/2105.01880>

Hankel Determinants of shifted sequences of Bernoulli and Euler numbers
Karl Dilcher, Lin Jiu

<http://arxiv.org/abs/2105.01936>

From Kajihara’s transformation formula to deformed Macdonald–Ruijsenaars and Noumi–Sano operators
Martin Hallnäs, Edwin Langmann, Masatoshi Noumi, Hjalmar Rosengren

<http://arxiv.org/abs/2105.02524>

Monotonicity properties for ratios and products of modified Bessel functions and sharp trigonometric bounds
Javier Segura

<http://arxiv.org/abs/2105.02536>

Higher order deformed elliptic Ruijsenaars operators
Martin Hallnäs, Edwin Langmann, Masatoshi Noumi, Hjalmar Rosengren

<http://arxiv.org/abs/2105.03794>

On the coefficients in an asymptotic expansion of $(1 + 1/x)^x$
T. M. Dunster, Jessica M. Perez

<http://arxiv.org/abs/2105.03913>

Subgroup regular sets in Cayley graphs
Yanpeng Wang, Binzhou Xia, Sanming Zhou

<http://arxiv.org/abs/2105.05196>

Hypergeometric functions at unit argument: simple derivation of old and new identities
A. Çetinkaya, D. B. Karp, E. G. Prilepkina

<http://arxiv.org/abs/2105.05307>

Distribution of the Scaled Condition Number of Single–spiked Complex Wishart Matrices
Pasan Dissanayake, Prathapasinghe Dharmawansa, Yang Chen

<http://arxiv.org/abs/2105.05386>

A note on the zeros of Jensen polynomials
Young–One Kim, Jungseob Lee

<http://arxiv.org/abs/2105.05660>

Graph Schemes, Graph Series, and Modularity
Kathrin Bringmann, Chris Jennings–Shaffer, Antun Milas

<http://arxiv.org/abs/2105.06321>

Orthogonal polynomials for the weight $x^\nu \exp(-x - t/x)$
Semyon Yakubovich

<http://arxiv.org/abs/2105.07794>

The Gołab–Schinzel and Goldie functional equations in Banach algebras
N. H. Bingham, A. J. Ostaszewski

<http://arxiv.org/abs/2105.07922>

How well–conditioned can the eigenvalue problem be?
Carlos Beltrán, Laurent Bétermin, Peter Grabner, Stefan Steinerberger

<http://arxiv.org/abs/2105.08539>

Binomial Determinants for Tiling Problems Yield to the Holonomic Ansatz
Hao Du, Christoph Koutschan, Thotsaporn Thanatipanonda, Elaine Wong

<http://arxiv.org/abs/2105.08602>

On the eleventh degree transformation of elliptic functions
Felix Klein

<http://arxiv.org/abs/2105.08922>

The Cuboidal Lattices and their Lattice Sums
Antony Burrows, Shaun Cooper, Peter Schwerdtfeger

<http://arxiv.org/abs/2105.08989>

Recursion formulas for integrated products of Jacobi polynomials
Sven Beuchler, Tim Haubold, Veronika Pillwein

<http://arxiv.org/abs/2105.10096>

Three families of q –Lommel polynomials
Jang Soo Kim, Dennis Stanton

<http://arxiv.org/abs/2105.10579>

An algebraic interpretation of the intertwining operators associated with the discrete Fourier transform
Mesuma Atakishiyeva, Natig Atakishiyev, Alexei Zhedanov

<http://arxiv.org/abs/2105.10958>

Approximation and localized polynomial frame on double hyperbolic and conic domains
Yuan Xu

<http://arxiv.org/abs/2105.11110>

Real eigenvalues of elliptic random matrices
Sung–Soo Byun, Nam–Gyu Kang, Ji Oon Lee, Jinyeop Lee

<http://arxiv.org/abs/2105.13293>

On the Maxwell–Bloch System in the Sharp–Line Limit Without Solitons
Sitai Li, Peter D. Miller

<http://arxiv.org/abs/2105.14419>

Spectral analysis of bilateral birth–death processes: some new explicit examples
Manuel D. de la Iglesia

<http://arxiv.org/abs/2105.14525>

q -Analogues of strongly regular graphs
Michael Braun, Dean Crnković, Vedrana Mikulić Crnković, Andrea Švob

<http://arxiv.org/abs/2105.14837>

Hedgehogs in Lehmer’s problem
Jan–Willem M. van Ittersum, Berend Ringeling, Wadim Zudilin

<http://arxiv.org/abs/2105.15031>

Complex hypergeometric functions and integrable many body problems
G. A. Sarkissian, V. P. Spiridonov

<http://arxiv.org/abs/2106.01042>

On a class of q -orthogonal polynomials and the q -Riemann Hilbert Problem
Nalini Joshi, Tomas Lasic Latimer

<http://arxiv.org/abs/2106.01371>

The asymptotic expansion of a sum appearing in an approximate functional equation for the Riemann zeta function
R. B. Paris

<http://arxiv.org/abs/2106.02132>

Canonical Polynomial Sequences: Inverse Pairs
Philip Feinsilver

<http://arxiv.org/abs/2106.02160>

Introduction to Cluster Algebras. Chapter 7
Sergey Fomin, Lauren Williams, Andrei Zelevinsky

<http://arxiv.org/abs/2106.02334>

Statistics for Unimodal Sequences
Walter Bridges, Kathrin Bringmann

<http://arxiv.org/abs/2106.02959>

Reflecting (on) the modulo 9 Kanade–Russell (conjectural) identities
Ali Uncu, Wadim Zudilin

<http://arxiv.org/abs/2106.03421>

q -Selberg Integrals and Koornwinder Polynomials
Jyoichi Kaneko

<http://arxiv.org/abs/2106.04733>

N -dimensional Smorodinsky–Winternitz model and related higher rank quadratic algebra $SW(N)$
Francisco Correa, Md Fazlul Hoque, Ian Marquette, Yao–Zhong Zhang

<http://arxiv.org/abs/2106.05908>

Update: Some new results on lower bounds on (n, r) -arcs in $PG(2, q)$ for $q \leq 31$
Michael Braun

<http://arxiv.org/abs/2106.06392>

Filled Julia sets of Chebyshev polynomials
Jacob Stordal Christiansen, Christian Henriksen, Henrik Laurberg Pedersen, Carsten Lunde Petersen

<http://arxiv.org/abs/2106.06512>

Elliptic Ruijsenaars difference operators on bounded partitions
Jan Felipe van Diejen, Tamás Görbe

<http://arxiv.org/abs/2106.07394>

Elliptic Racah polynomials
Jan Felipe van Diejen, Tamás Görbe

<http://arxiv.org/abs/2106.09773>

New infinite hierarchies of polynomial identities related to the Capparelli partition theorems
Alexander Berkovich, Ali Kemal Uncu

<http://arxiv.org/abs/2106.09792>

On Weierstrass \wp in signature 3
P. L. Robinson

<http://arxiv.org/abs/2106.10400>

A Matrix Related to Stern Polynomials and the Prouhet–Thue–Morse Sequence
George Beck, Karl Dilcher

<http://arxiv.org/abs/2106.10461>

Yet another way of calculating moments of the Kesten’s distribution and its consequences
Paweł J. Szabłowski

<http://arxiv.org/abs/2106.10877>

Three steps away from Shapiro’s problem: lower bounds for graphic sums with functions ‘max’ or ‘min’ in denominators
Sergey Sadov

<http://arxiv.org/abs/2106.10917>

Multi–Lah numbers and multi–Stirling numbers of the first kind
Dae San Kim, Hye Kyun Kim, Taekyun Kim, Hyunseok Lee, Seongho Park

<http://arxiv.org/abs/2106.11370>

On the convergence of multi–level Hermite–Padé approximants
L. G. González Ricardo, G. López Lagomasino, S. Medina Peralta

<http://arxiv.org/abs/2106.12707>

On multiple orthogonal polynomials on the step-line
Amilcar Branquinho, Ana Foulquié–Moreno, Manuel Mañas

<http://arxiv.org/abs/2106.13317>

On essential self-adjointness of singular Sturm–Liouville operators
S. Blake Allan, Fritz Gesztesy, Alexander Sakhnovich

<http://arxiv.org/abs/2106.13378>

Schubert polynomials, the inhomogeneous TASEP, and evil-avoiding permutations
Donghyun Kim, Lauren Williams

<http://arxiv.org/abs/2106.13481>

A study on properties of degenerate and zero-truncated degenerate Poisson random variables
Taekyun Kim, Dae san Kim, Hyunseok Lee, Seong Ho Park, Jongkyum Kwon

<http://arxiv.org/abs/2106.13726>

On second order q -difference equations for high-order Sobolev-type q -Hermite orthogonal polynomials
Carlos Hermoso, Edmundo J. Huertas, Alberto Lastra, Anier Soria–Lorente

<http://arxiv.org/abs/2106.13902>

The conjugate gradient algorithm on a general class of spiked covariance matrices
Xiucai Ding, Thomas Trogdon

<http://arxiv.org/abs/2106.14041>

The q -Onsager algebra and its alternating central extension
Paul Terwilliger

<http://arxiv.org/abs/2106.14884>

The algebra U_q^+ and its alternating central extension \mathcal{U}_q^+
Paul Terwilliger

<http://arxiv.org/abs/2106.14919>

Elliptic Ruijsenaars difference operators, symmetric polynomials, and Wess–Zumino–Witten fusion rings
Jan Felipe van Diejen, Tamás Görbe

<http://arxiv.org/abs/2106.15079>

Modulated Bi-orthogonal Polynomials on the Unit Circle: The $2j - k$ and $j - 2k$ Systems
Roozbeh Gharakhloo, Nicholas S. Witte

<http://arxiv.org/abs/2106.15619>

An endpoint estimate of the bilinear paraboloid restriction operator
Jungjin Lee

Other Relevant OP–SF E–Prints

<http://arxiv.org/abs/2105.00135>

Exact and approximate solutions to the minimum of $1 + x + \dots + x^{2n}$
Aaron Hendrickson, Claude F. Leibovici

<http://arxiv.org/abs/2105.00432>

The Anzellotti–Gauss–Green formula and least gradient functions in metric measure spaces
Wojciech Górný, José M. Mazón

<http://arxiv.org/abs/2105.00438>

A note on the Lauricella matrix functions
Ravi Dwivedi, Vivek Sahai

<http://arxiv.org/abs/2105.00869>

BesselK Derivatives with respect to Order at one half
Charles Ryavec

<http://arxiv.org/abs/2105.00936>

Specializing Koornwinder polynomials to Macdonald polynomials of type B, C, D and BC
Kohei Yamaguchi, Shintarou Yanagida

<http://arxiv.org/abs/2105.01362>

Ward identities in the \mathfrak{sl}_3 Toda conformal field theory
Baptiste Cerclé, Yichao Huang

<http://arxiv.org/abs/2105.01543>

On webs, polylogarithms and cluster algebras
Luc Pirio

<http://arxiv.org/abs/2105.02068>

Conductor zeta function for the $GL(2)$ universal family
Farrell Brumley, Didier Lesesvre, Djordje Milićević

<http://arxiv.org/abs/2105.02546>

New structure on the quantum alcove model with applications to representation theory and Schubert calculus
Takafumi Kouno, Cristian Lenart, Satoshi Naito

<http://arxiv.org/abs/2105.02946>

q -difference equation for generalized trivariate q -Hahn polynomials
Sama Arjika, Mahaman Kabir Mahaman

<http://arxiv.org/abs/2105.02997>

A Note on the Convolution of Circle Impulses
Brad Osgood

<http://arxiv.org/abs/2105.03550>

New q -supercongruences arising from a summation of basic hypergeometric series
Chuanan Wei, Chun Li

<http://arxiv.org/abs/2105.03624>

On the Motion of Billiards in Ellipses
H. Stachel

<http://arxiv.org/abs/2105.03795>

Matrix addition and the Dunkl transform at high temperature
Florent Benaych-Georges, Cesar Cuenca, Vadim Gorin

<http://arxiv.org/abs/2105.03927>

Parametric binomial sums involving harmonic numbers
Necdet Batir

<http://arxiv.org/abs/2105.04056>

IPS/Zeta Correspondence
Takashi Komatsu, Norio Konno, Iwao Sato

<http://arxiv.org/abs/2105.04141>

Explicit identities on zeta values over imaginary quadratic field
Soumyarup Banerjee, Rahul Kumar

<http://arxiv.org/abs/2105.04334>

Asymptotic Analysis of q -Recursive Sequences
Clemens Heuberger, Daniel Krenn, Gabriel F. Lipnik

<http://arxiv.org/abs/2105.04734>

Proof of a conjecture of Dahmen and Beukers on counting integral Lamé equations with finite monodromy
Zhijie Chen, Ting-Jung Kuo, Chang-Shou Lin

<http://arxiv.org/abs/2105.04781>

On the value-distribution of iterated integrals of the logarithm of the Riemann zeta-function II: probabilistic aspects
Kenta Endo, Shōta Inoue, Masahiro Mine

<http://arxiv.org/abs/2105.04942>

A heuristic derivation of linear recurrence relations for $\zeta'(-2k)$ and $\zeta(2k+1)$
H. Gopalakrishna Gadiyar, R. Padma

<http://arxiv.org/abs/2105.05283>

Maximal free energy of the log-gamma polymer
Guillaume Barraquand, Ivan Corwin, Evgeni Dimitrov

<http://arxiv.org/abs/2105.05437>

Residue of some Eisenstein series
Shoyu Nagaoka

<http://arxiv.org/abs/2105.05567>

Gosper Summability of Rational Multiples of Hypergeometric Terms
Qing-Hu Hou, Guo-Jie Li

<http://arxiv.org/abs/2105.06821>

Atkinson's formula for the mean square of $\zeta(s)$ with an explicit error term
Aleksander Simonič, Valeriia V. Starichkova

<http://arxiv.org/abs/2105.06848>

Universality theorem for the iterated integrals of the logarithm of the Riemann zeta-function
Kenta Endo

<http://arxiv.org/abs/2105.06991>

On a family of Jacobi type polynomials as eigenfunctions of 2×2 hypergeometric operators: Structural formulas

C. Calderón, M. M. Castro

<http://arxiv.org/abs/2105.07090>

Quadratic transformation and matrix biorthogonal polynomials: an \mathcal{LU} factorization approach
Kiran Kumar Behera

<http://arxiv.org/abs/2105.07130>

An asymptotic expansion for a Lambert series associated to the symmetric square L -function
Abhishek Juyal, Bibekananda Maji, Sumukha Sathyanarayana

<http://arxiv.org/abs/2105.07422>

Zeros of Dirichlet L -functions on the critical line
Keiju Sono

<http://arxiv.org/abs/2105.07458>

On summation formulas in probability theory
Alexander E. Patkowski

<http://arxiv.org/abs/2105.07547>

Sparse Spectral-Galerkin Method on An Arbitrary Tetrahedron Using Generalized Koornwinder Polynomials

Lueling Jia, Huiyuan Li, Zhimin Zhang

<http://arxiv.org/abs/2105.08227>

High order finite difference Hermite WENO fixed-point fast sweeping method for static Hamilton-Jacobi equations

Yupeng Ren, Yulong Xing, Jianxian Qiu

<http://arxiv.org/abs/2105.08366>

Asymptotic approximations of Good's special functions arising in atomic physics
David Békollè, Aline Bonami, Moïse Kwato Njock

<http://arxiv.org/abs/2105.09631>

Ohno relation for regularized multiple zeta values
Minoru Hirose, Hideki Murahara, Shingo Saito

<http://arxiv.org/abs/2105.09896>

Spectral decimation of a self-similar version of almost Mathieu-type operators
Radhakrishnan Balu, Gamal Mograby, Kasso A. Okoudjou, Alexander Teplyaev

<http://arxiv.org/abs/2105.10132>

Li-Yau Inequalities for Dunkl Heat Equations
Huaiqian Li, Bin Qian

<http://arxiv.org/abs/2105.10800>

On a \mathbb{C}^2 -valued integral index transform and bilateral hypergeometric series
Yury A. Neretin

<http://arxiv.org/abs/2105.10896>

Non-polynomial q -Askey scheme: integral representations, eigenfunction properties, and polynomial limits

Jonatan Lenells, Julien Roussillon

<http://arxiv.org/abs/2105.11275>

Riesz transform and commutators in the Dunkl setting

Yongsheng Han, Ming-Yi Lee, Ji Li, Brett D. Wick

<http://arxiv.org/abs/2105.11436>

Differential forms on the curves associated to Appell-Lauricella hypergeometric series and the Cartier operator on them

Ryo Ohashi, Shushi Harashita

<http://arxiv.org/abs/2105.11597>

Polylogarithmic Hardy space & its Nevanlinna counting function

Himanshu Singh

<http://arxiv.org/abs/2105.11699>

The Average Size of Ramanujan Sums over Cubic Number Fields

Jing Ma, Huayan Sun, Wenguang Zhai

<http://arxiv.org/abs/2105.12156>

Double tails of multiple zeta values

P. Akhilesh

<http://arxiv.org/abs/2105.12418>

The Pieri formulas for hook type Schur multiple zeta functions

Maki Nakasuji, Wataru Takeda

<http://arxiv.org/abs/2105.12493>

Elements of spin Hurwitz theory: closed algebraic formulas, blobbed topological recursion, and a proof of the Giacchetto-Kramer-Lewanski conjecture

Alexander Alexandrov, Sergey Shadrin

<http://arxiv.org/abs/2105.12607>

Stability of Poincaré constant

Jordan Serres

<http://arxiv.org/abs/2105.12779>

The annihilation operator for certain family of q -Hermite Sobolev-type orthogonal polynomials

Carlos Hermoso, Anier Soria-Lorente

<http://arxiv.org/abs/2105.12947>

On certain extensions of Ramanujan's Master Theorem and their applications

Omprakash Atale, Mahendra Shirude

<http://arxiv.org/abs/2105.13019>

An extension of the orthogonal derivative with adjustable precision

Enno Diekema

<http://arxiv.org/abs/2105.13052>

A generalization of the randomized singular value decomposition
Nicolas Boullé, Alex Townsend

<http://arxiv.org/abs/2105.13321>

Twisted Ruelle zeta function at zero for compact hyperbolic surfaces
Jan Frahm, Polyxeni Spilioti

<http://arxiv.org/abs/2105.13875>

Minimal excludant over partitions into distinct parts
Prabh Simrat Kaur, Subhash Chand Bhorla, Pramod Eyyunni, Bibekananda Maji

<http://arxiv.org/abs/2105.13989>

Lucas, Fibonacci, and Chebyshev polynomials from matrices
Jerzy Kocik

<http://arxiv.org/abs/2105.14443>

Design of distant retrograde orbits based on a higher order analytical solution
Martin Lara

<http://arxiv.org/abs/2105.14483>

Computation of Eigenvalues for Nonlocal Models by Spectral Methods
Luciano Lopez, Sabrina Francesca Pellegrino

<http://arxiv.org/abs/2105.14811>

A simple numerical method for Hele–Shaw type problems by the method of fundamental solutions
Koya Sakakibara, Yusaku Shimoji, Shigetoshi Yazaki

<http://arxiv.org/abs/2105.15025>

Faulhaber polynomials and reciprocal Bernoulli polynomials
Bernd C. Kellner

<http://arxiv.org/abs/2105.15049>

Shifted sums of the Bernoulli numbers, reciprocity, and denominators
Bernd C. Kellner

<http://arxiv.org/abs/2105.15051>

Moments of certain character sums that are unnamed
Ping Xi

<http://arxiv.org/abs/2105.15169>

On (self-) reciprocal Appell polynomials: Symmetry and Faulhaber-type polynomials
Bernd C. Kellner

<http://arxiv.org/abs/2106.00087>

Lecture Notes on Stationary Gamma Processes
Robert L. Wolpert

<http://arxiv.org/abs/2106.00165>

Upper bounds for fractional joint moments of the Riemann zeta function
Michael J. Curran

<http://arxiv.org/abs/2106.00303>

The measures with L^2 -bounded Riesz transform satisfying a subcritical Wolff-type energy condition
Damian Dąbrowski, Xavier Tolsa

<http://arxiv.org/abs/2106.00680>

The measures with L^2 -bounded Riesz transform and the Painlevé problem for Lipschitz harmonic functions
Xavier Tolsa

<http://arxiv.org/abs/2106.01047>

Tschebyshev–Padé approximations for multivalued functions
Evguenii A. Rakhmanov, Sergey P. Suetin

<http://arxiv.org/abs/2106.01119>

Identities for the Euler polynomials, p -adic integrals and Witt's formula
Su Hu, Min–Soo Kim

<http://arxiv.org/abs/2106.01370>

q -RBFNN: A Quantum Calculus-based RBF Neural Network
Syed Saiq Hussain, Muhammad Usman, Taha Hasan Masood Siddique, Imran Naseem, Roberto Togneri, Mohammed Bennamoun

<http://arxiv.org/abs/2106.01715>

Spectral Triples and Zeta-Cycles
Alain Connes, Caterina Consani

<http://arxiv.org/abs/2106.01983>

The gamma function and a certain sequence of differences
David E. Radford

<http://arxiv.org/abs/2106.02313>

Algebraic structure underlying spherical, parabolic and prolate spheroidal bases of the nine-dimensional MICZ–Kepler problem
Dai–Nam Le, Van–Hoang Le

<http://arxiv.org/abs/2106.02444>

Zeta and Fredholm determinants of self-adjoint operators
Luiz Hartmann, Matthias Lesch

<http://arxiv.org/abs/2106.02936>

Paley type inequality on Hardy space in the Dunkl setting
ZhuoRan Hu

<http://arxiv.org/abs/2106.03005>

A discrete mean-value theorem for the higher derivatives of the Riemann zeta function
Christopher Hughes, Andrew Pearce–Crump

<http://arxiv.org/abs/2106.03057>

Sharp lower bounds for moments of $\zeta'(\rho)$
Peng Gao

<http://arxiv.org/abs/2106.03117>

Boundary behavior of the Szegő kernel

Jujie Wu, Xu Xing

<http://arxiv.org/abs/2106.03284>

Exactly solvable discrete time Birth and Death processes

Ryu Sasaki

<http://arxiv.org/abs/2106.03378>

Some Remarks on the Location of Non-Asymptotic Zeros of Whittaker and Kummer Hypergeometric Functions

Islam Boussaada, Guilherme Mazanti, Silviu-Iulian Niculescu

<http://arxiv.org/abs/2106.03525>

Sturm-Liouville-type operators with frozen argument and Chebyshev polynomials

Tzong-Mo Tsai, Hsiao-Fan Liu, Sergey Buterin, Lung-Hui Chen, Chung-Tsun Shieh

<http://arxiv.org/abs/2106.03551>

Double integral of logarithm and exponential function expressed in terms of the Lerch function

Robert Reynolds, Allan Stauffer

<http://arxiv.org/abs/2106.03942>

Inverted state sums, inverted Habiro series, and indefinite theta functions

Sunghyuk Park

<http://arxiv.org/abs/2106.04168>

Schur expansion of random-matrix reproducing kernels

Leonardo Santilli, Miguel Tierz

<http://arxiv.org/abs/2106.04339>

Quantization of classical spectral curves via topological recursion

Bertrand Eynard, Elba Garcia-Failde, Olivier Marchal, Nicolas Orantin

<http://arxiv.org/abs/2106.04500>

Spectral Measures for Derivative Powers via Matrix-Valued Clark Theory

Michael Bush, Constanze Liaw, Robert T. W. Martin

<http://arxiv.org/abs/2106.04523>

Near-squares in binary recurrence sequences

Nikos Tzanakis, Paul Voutier

<http://arxiv.org/abs/2106.04644>

Existence of a zero-free strip for the Riemann zeta function

Peter Burton

<http://arxiv.org/abs/2106.04797>

On Ramanujan's formula for $\zeta(1/2)$ and $\zeta(2m+1)$

Anushree Gupta, Bibekananda Maji

<http://arxiv.org/abs/2106.05101>

Local smoothing and Hardy spaces for Fourier integral operators

Jan Rozendaal

<http://arxiv.org/abs/2106.05585>

Extensions of the combinatorics of poly-Bernoulli numbers
Beáta Bényi, Toshiki Matsusaka

<http://arxiv.org/abs/2106.06055>

Sharp Hardy–Sobolev–Maz’ya, Adams and Hardy–Adams inequalities on quaternionic hyperbolic spaces and the Cayley hyperbolic plane
Joshua Flynn, Guozhen Lu, Qiaohua Yang

<http://arxiv.org/abs/2106.06408>

Some Orthogonal Functions from Cauchy Determinants
Lijing Wang

<http://arxiv.org/abs/2106.06764>

Relationships between hyperelliptic functions of genus 2 and elliptic functions
Takanori Ayano, Victor M. Buchstaber

<http://arxiv.org/abs/2106.06915>

The inverse Riemann zeta function
Artur Kawalec

<http://arxiv.org/abs/2106.07265>

On self-similar Bernstein functions and corresponding generalized fractional derivatives
Peter Kern, Svenja Lage

<http://arxiv.org/abs/2106.07375>

Infinite products of absolute zeta functions
Nobushige Kurokawa, Hidekazu Tanaka

<http://arxiv.org/abs/2106.07388>

Nonhomogeneous Dispersive Water Waves and Painlevé equations
Maciej Błaszak

<http://arxiv.org/abs/2106.07670>

BPS Indices, Modularity and Perturbations in Quantum K-theory
Hans Jockers, Peter Mayr, Urmi Ninad, Alexander Tabler

<http://arxiv.org/abs/2106.07727>

Convergence of ASEP to KPZ with basic coupling of the dynamics
Shalin Parekh

<http://arxiv.org/abs/2106.07946>

On solutions of matrix-valued convolution equations, anisotropic fractional derivatives and their applications in linear and non-linear anisotropic viscoelasticity
Andrzej Hanyga

<http://arxiv.org/abs/2106.08449>

Dynamical Spin Chains in 4D $\mathcal{N} = 2$ SCFTs
Elli Pomoni, Randle Rabe, Konstantinos Zoubos

<http://arxiv.org/abs/2106.09181>

A cyclotomic family of thin hypergeometric monodromy groups in $Sp_4(\mathbb{R})$
Simion Filip, Charles Fougeron

<http://arxiv.org/abs/2106.09315>

Fast evaluation of some p -adic transcendental functions
Xavier Caruso, Marc Mezzarobba, Nobuki Takayama, Tristan Vaccon

<http://arxiv.org/abs/2106.09755>

Partial zeta functions, partial exponential sums, and p -adic estimates
Noah Bertram, C. Douglas Haessig

<http://arxiv.org/abs/2106.10001>

The reciprocals of tails of the alternating Riemann zeta function
Zhonghua Li, Lu Yan

<http://arxiv.org/abs/2106.10228>

New generating and counting Functions of prime numbers applied to approximate Chebyshev 2nd class function and the least action principle applied to find non-trivial roots of the Zeta function and to Riemann Hypothesis
Eduardo Stella, Celso L Ladera, Guillermo Donoso

<http://arxiv.org/abs/2106.10756>

Sums of proper divisors follow the Erdős-Kac law
Paul Pollack, Lee Troupe

<http://arxiv.org/abs/2106.10842>

On the modularity of solutions of certain differential equations of hypergeometric type
Hicham Saber, Abdellah Sebbar

<http://arxiv.org/abs/2106.10948>

A scalar Riemann-Hilbert problem on the torus: Applications to the KdV equation
Mateusz Piorkowski, Gerald Teschl

<http://arxiv.org/abs/2106.12058>

Dubrovnik Skein Theory and Power Sum Elements
Alexander Pokorný

<http://arxiv.org/abs/2106.12201>

Lévy processes linked to the lower-incomplete gamma function
Luisa Beghin, Costantino Ricciuti

<http://arxiv.org/abs/2106.12670>

Boundary Green's functions and Minkowski content measure of multi-force-point $SLE_{\kappa}(\underline{\rho})$
Dapeng Zhan

<http://arxiv.org/abs/2106.12953>

On the vanishing of some mock theta functions at odd roots of unity
Mohamed El Bachraoui

<http://arxiv.org/abs/2106.13046>

About the (Hahn) classical character of 2-orthogonal solutions of two families of differential equations of third order
Teresa Augusta Mesquita

<http://arxiv.org/abs/2106.13653>

Algebraicity of higher Green functions at a CM point
Yingkun Li

<http://arxiv.org/abs/2106.13729>

Python computations of general Heun functions from their integral series representations
Tolga Birkandan, Pierre–Louis Giscard, Aditya Tamar

<http://arxiv.org/abs/2106.14034>

An alternate circular summation formula of theta functions and its applications
Jun–Ming Zhu

<http://arxiv.org/abs/2106.14320>

Legendre Deep Neural Network (LDNN) and its application for approximation of nonlinear Volterra Fredholm Hammerstein integral equations
Zeinab Hajimohammadi, Kourosh Parand, Ali Ghodsi

<http://arxiv.org/abs/2106.14585>

Factoring Variants of Chebyshev Polynomials with Minimal Polynomials of $\cos(\frac{2\pi}{d})$
D. A. Wolfram

<http://arxiv.org/abs/2106.14674>

On the Stieltjes constants and gamma functions with respect to alternating Hurwitz zeta functions
Su Hu, Min–Soo Kim

<http://arxiv.org/abs/2106.14875>

Gram quadrature: numerical integration with Gram polynomials
Irfan Muhammad

<http://arxiv.org/abs/2106.15109>

Analytic Continuation of Generalized Trigonometric Functions
Pisheng Ding

<http://arxiv.org/abs/2106.15245>

Generalizations of a terminating summation formula of basic hypergeometric series and their applications
Jun–Ming Zhu

<http://arxiv.org/abs/2106.15260>

On Zagier’s Conjecture About the Inverse of a Matrix Related to Double Zeta Values
Yawen Ma, Lee–Peng Teo

<http://arxiv.org/abs/2106.15414>

Generating series of non–oriented constellations and marginal sums in the Matching–Jack conjecture
Houcine Ben Dali

<http://arxiv.org/abs/2106.15455>

The orthogonal Shmaliy polynomials are Hahn polynomials
Enno Diekema

<http://arxiv.org/abs/2106.15949>

On zeroes and poles of Helson zeta functions
I. Bochkov, R. Romanov

Topic #4 ——— OP – SF Net 28.4 ——— July 15, 2021

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 28.5 should be sent by September 1, 2021.

OP–SF NET is an electronic newsletter of the SIAM Activity Group on Special Functions and Orthogonal Polynomials. 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 SIAM–OPSF (OP–SF Talk).

SIAM–OPSF (OP–SF Talk) is a listserv of the SIAM Activity Group on Special Functions and Orthogonal Polynomials, which facilitates communication among members, and friends of the Activity Group. See the previous Topic. To post an item to the listserv, send e–mail to siam-opsf@siam.org.

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 OP–SF Talk moderator

The appointed officers are:

Howard Cohl, OP–SF NET co–editor

Sarah Post, OP–SF NET co–editor

Diego Dominici, OP–SF Talk moderator

Bonita Saunders, Webmaster and OP–SF Talk moderator

Topic #5 ——— OP – SF Net 28.4 ——— July 15, 2021

From: OP–SF Net Editors

Subject: Thought of the Month by **Barry Simon**

“Throughout, all our Hilbert spaces will be *complex* and *separable* (are there any others?)...”

Barry Simon, Section 1.1 in *Trace Ideals and Their Applications*.