

OP-SF NET – Volume 30, Number 3 – May 15, 2023

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

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

OP-SF Net is distributed to OPSF Activity Group members and non-members alike through the OP-SF Talk listserv.

If you are interested in subscribing to the Newsletter and/or OP-SF Talk, or if you would like to submit a topic to the Newsletter or a contribution to OP-SF Talk, please send an email to the OP-SF Net Editors.

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Calendar of Events:

June 8–10, 2023

Orthogonal Polynomials and Applications
Leuven, Belgium.

<https://wis.kuleuven.be/events/conference-prof-walter-van-assche/orthogonal-polynomials-and-applications>

June 12–16, 2023

25th Conference of the International Linear Algebra Society (**ILAS2023**)
Minisymposium on Orthogonal Polynomials, Matrix Analysis and Applications
Organizers: Amilcar Branquinho, Ana Foulquié-Moreno, Manuel Mañas, Francisco Marcellán.

<https://ilas2023.es/>

June 12–21, 2023

Foundations of Computational Mathematics (FoCM 2023),
Sorbonne University, Paris, France

<https://focm2023.org/>

Workshops related to our SIAG:

Session II.5, June 15–17, 2023: **Random Matrices**

Organizers: Ioana Dumitriu, University of Washington, Sheehan Olver, Imperial College

Session III.2, June 19–21, 2023: **Approximation Theory**

Organizers: Albert Cohen, Sorbonne Université

Peter Binev, University of South Carolina, Guergana Petrova, Texas A&M University

Session III.7, June 19–21, 2023: **Special Functions and Orthogonal Polynomials**

Organizers: Ana Loureiro, University of Kent,

Paco Marcellán, Universidad Carlos III de Madrid,

Andrei Martínez–Finkelshtein, Baylor University and Universidad de Almería.

June 21–24, 2023

International Mathematical Conference: Analysis, Approximation, Applications ([AAA2023](#))

Dedicated to [Gradimir V. Milovanović](#) on the occasion on his 75th birthday

[Hotel LiderS](#), Vrnjačka Banja, Serbia.

<https://imi.pmf.kg.ac.rs/aaa2023/>

August 14–18, 2023

International Conference on Spectral Theory and Approximation ([ICSTA](#))

Lund University, Lund, Sweden.

<https://icsta.se/>

* Registration is now open (deadline June 14)

* Funding is available for Ph.D. students/postdocs

June 24–28, 2024

17th International Symposium on Orthogonal Polynomials, Special Functions and Applications (OPSFA–17),

Universidad de Granada, Granada, Spain.

Topic #1 ——— OP – SF Net 30.3 ——— May 15, 2023

From: OP–SF Net Editors

Subject: Announcement: 2023 Class of SIAM Fellows: **Edward B. Saff** and **Barry Simon**

Edward B. Saff and Barry Simon have been elected in the 2023 Class of SIAM Fellows.

The SIAM Fellows Program recognizes members of SIAM who have made outstanding contributions to fields served by the SIAM community.

Edward B. Saff: For contributions to approximation theory, potential theory, numerical analysis, particle systems analysis, and inverse problems.

Barry Simon: For outstanding originality in contributions to spectral theory, mathematical physics, and orthogonal polynomials, as well as strong research leadership through supervision.

The list of the 2023 Class of the Fellows of SIAM are available here:

<https://www.siam.org/prizes-recognition/fellows-program/all-siam-fellows/class-of-2023>

Congratulations to Ed and Barry!

Topic #2 ——— OP – SF Net 30.3 ——— May 15, 2023

From: Jacob Stordal Christiansen (jacob_stordal.christiansen@math.lth.se)

Subject: Second Announcement: ICSTA 2023 in Lund, Sweden

Welcome to the first International Conference on Spectral Theory and Approximation, hosted by Lund University.

The conference will take place August 14th to 18th, 2023 in Lund, which is located in the south of Sweden, not far from Copenhagen.

The aim of the conference is to bring together researchers working in areas related to Spectral Theory and Approximation in a broad sense to promote interaction and exchange of ideas.

The topics of the conference include, but are not limited to:

- Periodic and Almost Periodic Operators
- Extremal Problems
- Jacobi and CMV matrices
- Orthogonal Polynomials
- Schrödinger Operators
- Random Matrices
- Toeplitz Operators

Scientific committee: Jacob Stordal Christiansen (Lund University), Henrik Laurberg Pedersen (University of Copenhagen), Mikael Persson Sundqvist (Lund University), and Frank Wikström (Lund University)

We look forward to seeing you all in August!

*** Registration is now open (deadline June 14) and PhD students/postdocs can apply for funding to attend the conference.**

Topic #3 ——— OP – SF Net 30.3 ——— May 15, 2023

From: Christopher Lusti (christopher.lusti@mq.edu.au)

Subject: Report: Workshop on Integrable Systems and OP in Muizenberg, Cape Town, South Africa

In April (11–15), 2023, the [African Institute for Mathematical Sciences](#) (AIMS) in Cape Town hosted the ISOP [Workshop on Integrable Systems and Orthogonal Polynomials – Numerical and Analytical Perspectives](#). This workshop united dozens of local and international researchers to discuss their latest findings and ponder the future of this exciting field.

The workshop was organised by Kerstin Jordaan from the University of South Africa and Peter Clarkson from the University of Kent. They orchestrated a program that included 5 plenary talks and 27 invited talks, providing attendees with a broad overview of the many approaches and perspectives that are being used to study orthogonal polynomials and integrability.

The coastal region of Muizenberg provided a beautiful location for the workshop, located next to stunning Muizenberg beach and nearby walking trails. The scenic setting, coupled with the presence of local cafes and wineries, provided the perfect backdrop for the many lively discussions that took place

throughout the workshop.

Speakers showcased exciting new research results and suggested future directions with the potential to be fruitful. Attendees were given a glimpse into the cutting-edge approaches being used in the field, from algebraic to analytic and computational studies. The talks introduced new orthogonal hierarchies, identified new special solutions to orthogonal polynomial equations (and presented their properties), and demonstrated clever computational techniques for studying poles and zeroes of solutions to integrable equations. Many of the talks led to active Q-and-A sessions that carried on into discussions over lunch or dinner – generously provided by AIMS.

But the workshop was not just a place for seasoned professionals to showcase their expertise – it was also an opportunity for budding students to learn and engage with the field. Many of the talks were carefully designed to make fundamental concepts accessible to the local students housed in the AIMS facility, providing them with a solid foundation and hopefully igniting passion for this captivating field.

All in all, the ISOP Workshop was a resounding success, bringing together researchers in the field from diverse areas of expertise – connected by their shared interest in orthogonal polynomials and integrability – to collaborate, share knowledge, and inspire one another to explore new ideas in the discipline.

[Christopher Lustri](#), School of Mathematical and Physical Sciences, Macquarie University, Sydney, Australia

Topic #4 ——— OP – SF Net 30.3 ——— May 15, 2023

From: Roberto S. Costas-Santos (rscosa@gmail.com), Howard S. Cohl (howard.cohl@nist.gov),
Robert S. Maier (rsm@math.arizona.edu)

Subject: Report: 2023 AMS Special Session on Hypergeometric functions, q -Series and Generalizations

The 2023 [American Mathematical Society](#) Spring Eastern Virtual Sectional Meeting was held April 1–2, 2023: https://www.ams.org/meetings/sectional/2305_progfull.html. This AMS Sectional Meeting was professionally and efficiently organized by the Associate Secretary for the AMS Scientific Program, [Steven Weintraub](#), Lehigh University.

At this virtual [AMS](#) sectional meeting, a special session was co-organized by Howard S. Cohl (National Institute of Standards and Technology), Robert S. Maier (University of Arizona, Tucson), and Roberto S. Costas-Santos (Universidad Loyola Andalucía), entitled: *Hypergeometric functions, q -series and Generalizations*. The special session at the 2023 Spring Eastern Virtual Sectional Meeting was held remotely which gave the opportunity for presentations by individuals for whom travel to specific locations around the world might be difficult.

This special session was the third in a series of minisymposia and special sessions at conferences held during 2022–2023 on this topic. The first was at the 16th International Symposium on Orthogonal Polynomials, Special Functions and Applications ([OPSFA'16](#)) (virtual), July 13–17, 2022, and was entitled: *All Things Hypergeometric, q -series and Generalizations*. The second was at the [2022 AMS Fall Western Sectional Meeting](#) in Salt Lake City Utah, October 22–23, 2022, and was entitled: *Special Session on Hypergeometric Functions and q -series*. The aim of these sessions was to bring together experts in areas related to hypergeometric functions, q -series and their generalizations in order to exchange knowledge, current research, and also to organize an AMS Contemporary Mathematics (CONM) Proceedings on these topics. This CONM proceedings is in active preparation with an estimated 20 submissions of approximately 450 pages.

The schedule of talks in the special session was as follows (* represents speakers):

April 1st Morning Session: 8:00 a.m.–11:00 a.m.

- 8:00 a.m. *Generalized integrals and Gegenbauer functions*
Jan Dereziński*, University of Warsaw
Christian Gaß, University of Warsaw
Błażej Ruba, University of Copenhagen
- 9:00 a.m. *Explicit Forms and Proofs of Zagier's Rank Three Examples for Nahm's Problem*
Liuquan Wang*, Wuhan University
- 9:30 a.m. *Quadratic decomposition of bivariate orthogonal polynomials*
Teresa E. Perez*, University of Granada
- 10:00 a.m. *Hahn multiple orthogonal polynomials of type I: Hypergeometrical expressions*
Amílcar Branquinho, Universidade de Coimbra
Juan E. F. Díaz*, Universidade de Aveiro
Ana Foulquié-Moreno, Universidade de Aveiro
Manuel Mañas, Universidad Complutense de Madrid
- 10:30 a.m. *What's going on with the first q -Appell function?*
George E. Andrews*, Pennsylvania State University
Thomas Ernst, Uppsala University

April 1st Afternoon Session: 3:00 p.m.–5:45 p.m.

- 3:00 p.m. *Orthogonality of the big -1 Jacobi polynomials for non-standard parameters*
Howard Saul Cohl, NIST
Roberto S. Costas-Santos*, Universidad Loyola de Andalucía
- 3:30 p.m. *Double summation addition theorems for Jacobi functions of the first and second kind*
Howard Saul Cohl*, NIST
Roberto S. Costas-Santos, Universidad Loyola Andalucía
Loyal Durand, University of Wisconsin-Madison
Camilo Montoya, NIST
Gestur Ólafsson, Louisiana State University
- 4:00 p.m. *Counting matrix points on special varieties over finite fields*
Yifeng Huang, University of British Columbia
Ken Ono, University of Virginia
Hasan Saad*, University of Virginia
- 4:30 p.m. *Whitney extensions of small distortions in \mathbb{R}^n and their applications*
Steven Damelin*, University of Michigan
- 5:00 p.m. *Ordering conventions and identities in the Weyl-Heisenberg algebra*
Robert S. Maier*, University of Arizona, Tucson
- 5:30 p.m. *Discussion*

April 2nd Morning Session: 8:00 a.m.–11:00 a.m.

- 8:00 a.m. *Hyper-Mahler measures via Goncharov-Deligne cyclotomy*
Yajun Zhou*, Peking University
- 9:00 a.m. *Heckman-Opdam's hypergeometric functions and 2-parameter deformations of multiplicities*
Angela A. Pasquale*, Université de Lorraine

10:00 a.m. *Jellyfish, hypergeometric functions, and* $AGM_{\mathbb{F}_q}$

Ken Ono, University of Virginia

Eleanor McSpirt*, University of Virginia

10:30 a.m. *Painlevé and quasi-Painlevé equations*

Galina Filipuk*, University of Warsaw

The special session attracted some visitors, there were many questions and discussions, and we can look back at a successful event.

Topic #5 ——— OP – SF Net 30.3 ——— May 15, 2023

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 March and April 2023. This list has been separated into two categories.

OP–SF Net Subscriber E–Prints

<http://arxiv.org/abs/2303.00151>

Exponential trichotomy and global linearization of non-autonomous differential equations

Chaofan Pan, Manuel Pinto, Yonghui Xia

<http://arxiv.org/abs/2303.00560>

The super nabla operator

François Bergeron, Jim Haglund, Alessandro Iraci, Marino Romero

<http://arxiv.org/abs/2303.01333>

On Some Double Nahm Sums of Zagier

Zhineng Cao, Hjalmar Rosengren, Liuquan Wang

<http://arxiv.org/abs/2303.02224>

Triangular Diagonal Harmonics Conjectures

François Bergeron

<http://arxiv.org/abs/2303.02235>

Internal and external harmonics in bi-cyclide coordinates

Brandon Alexander, Howard S. Cohl, Hans Volkmer

<http://arxiv.org/abs/2303.02520>

Modified Bessel Functions in Analytic Number Theory

Bruce C. Berndt, Atul Dixit, Rajat Gupta, Alexandru Zaharescu

<http://arxiv.org/abs/2303.02793>

Some D-finite and Some Possibly D-finite Sequences in the OEIS

Manuel Kauers, Christoph Koutschan

<http://arxiv.org/abs/2303.02872>

On computing sets of integers with maximum number of pairs summing to powers of 2

Max A. Alekseyev

<http://arxiv.org/abs/2303.05008>

Efficient and Parallel Solution of High-order Continuous Time Galerkin for Dissipative and Wave Propagation Problems

Zhiming Chen, Yong Liu

<http://arxiv.org/abs/2303.05602>

Szegő kernel and symplectic aspects of spectral transform for extended spaces of rational matrices

M. Bertola, D. Korotkin, R. Sasani

<http://arxiv.org/abs/2303.05615>

The Variance-Gamma Distribution: A Review

Adrian Fischer, Robert E. Gaunt, Andrey Sarantsev

<http://arxiv.org/abs/2303.05928>

Vector-valued Heckman-Opdam polynomials: a Steinberg variation

Maarten van Puijssen

<http://arxiv.org/abs/2303.05942>

Probabilistic aspects of Jacobi theta functions

Paavo Salminen, Christophe Vignat

<http://arxiv.org/abs/2303.06538>

A q -Morris constant term identity for the Lie algebra A_n and its symmetric function generalizations

Yue Zhou

<http://arxiv.org/abs/2303.06805>

Lie algebras of differential operators for Matrix valued Laguerre type polynomials

Andrea L. Gallo, Pablo Román

<http://arxiv.org/abs/2303.06922>

Analytic aspects of generalized central trinomial coefficients

Huyile Liang, Yaling Wang, Yi Wang

<http://arxiv.org/abs/2303.07664>

Two closed-form evaluations for the generalized hypergeometric function ${}_4F_3(\frac{1}{16})$

Arjun K. Rathie, Mykola A. Shpot

<http://arxiv.org/abs/2303.08206>

Gaudin model for the multinomial distribution

Plamen Iliev

<http://arxiv.org/abs/2303.08628>

A Curious Trigonometric Infinite Product in Context

Michael Milgram

<http://arxiv.org/abs/2303.09069>

An A_2 Bailey tree and $A_2^{(1)}$ Rogers-Ramanujan-type identities

S. Ole Warnaar

<http://arxiv.org/abs/2303.09742>

A proof of a conjecture on the distance spectral radius

Yanna Wang, Bo Zhou

<http://arxiv.org/abs/2303.09848>

Jánossy densities and Darboux transformations for the Stark and cylindrical KdV equations

Tom Claeys, Gabriel Glesner, Giulio Ruzza, Sofia Tarricone

<http://arxiv.org/abs/2303.09937>

Voronoi summation formula for the generalized divisor function $\sigma_z^{(k)}(n)$

Atul Dixit, Bibekananda Maji, Akshaa Vatwani

<http://arxiv.org/abs/2303.10745>

A semi-periodic initial-value problem for the Kadomtsev–Petviashvili II equation

P. Kalamvokas, V. G. Papageorgiou, A. S. Fokas, L.-Y. Sung

<http://arxiv.org/abs/2303.11517>

τ -exceptional sequences and the shard intersection order in type A

Eric J. Hanson

<http://arxiv.org/abs/2303.12373>

Applications of infinite lower triangular matrices and their group structure in combinatorics and the theory of orthogonal polynomials

Paweł J. Szabłowski

<http://arxiv.org/abs/2303.12608>

Quantum algebra of multiparameter Manin matrices

Naihuan Jing, Yinlong Liu, Jian Zhang

<http://arxiv.org/abs/2303.13437>

p -capacity with Bessel convolution

Á. P. Horváth

<http://arxiv.org/abs/2303.13680>

Special values for continuous q -Jacobi polynomials

Howard S. Cohl, Roberto S. Costas–Santos

<http://arxiv.org/abs/2303.15496>

Holonomic Bessel modules and generating functions

Yik Man Chiang, Avery Ching, Xiaoli Lin

<http://arxiv.org/abs/2303.16030>

Continued fractions and orthogonal polynomials in several variables

Tomas Sauer, Yuan Xu

<http://arxiv.org/abs/2303.16182>

On semi-classical weight functions on the unit circle

Cleonice F. Bracciali, Karina S. Rampazzi, Luana L. Silva Ribeiro

<http://arxiv.org/abs/2303.17023>

Experimenting with Standard Young Tableaux

Shalosh B. Ekhad, Doron Zeilberger

<http://arxiv.org/abs/2303.17037>

Non-Hermitian Orthogonal Polynomials on a Trefoil

Ahmad B. Barhoumi, Maxim L. Yattselev

<http://arxiv.org/abs/2303.18032>

On the generating functions and special functions associated with superoscillations

Fabrizio Colombo, Rolf Soeren Krausshar, Irene Sabadini, Yilmaz Simsek

<http://arxiv.org/abs/2304.01208>

Sums involving the digamma function connected to the incomplete beta function and the Bessel functions

Juan L. González-Santander, Fernando Sánchez Lasheras

<http://arxiv.org/abs/2304.01377>

A Rademacher-type exact formula for partitions without sequences

Walter Bridges, Kathrin Bringmann

<http://arxiv.org/abs/2304.01579>

Rational Solutions of the Fifth Painlevé Equation. Generalised Laguerre Polynomials

Peter A. Clarkson, Clare Dunning

<http://arxiv.org/abs/2304.02200>

Zeta-polynomials, superpolynomials, DAHA and plane curve singularities

Ivan Cherednik

<http://arxiv.org/abs/2304.02918>

A double scaling limit for the d-PII equation with boundary conditions

Maurice Duits, Diane Holcomb

<http://arxiv.org/abs/2304.03395>

Gaussian inequality

Tewodros Amdeberhan, David Callan

<http://arxiv.org/abs/2304.03583>

Joint distribution of the cokernels of random p -adic matrices II

Jiwan Jung, Jungin Lee

<http://arxiv.org/abs/2304.04102>

On digamma series convertible into hypergeometric series

Asena Çetinkaya, Dmitrii Karp

<http://arxiv.org/abs/2304.04127>

Gaussian Unitary Ensembles with Jump Discontinuities, PDEs and the Coupled Painlevé IV System

Yang Chen, Shulin Lyu

<http://arxiv.org/abs/2304.04289>

Concentration of Hitting Times in Erdős-Rényi graphs

Andrea Ottolini, Stefan Steinerberger

<http://arxiv.org/abs/2304.04414>

Markov Chains and Multiple Orthogonality

Amílcar Branquinho, Juan E. F. Díaz, Ana Foulquié-Moren, Manuel Mañas

<http://arxiv.org/abs/2304.05337>

An extremal problem and inequalities for entire functions of exponential type
Andrés Chirre, Dimitar K. Dimitrov, Emily Quesada–Herrera

<http://arxiv.org/abs/2304.05671>

Algebroid Solutions of the Degenerate Third Painlevé Equation for Vanishing Formal Monodromy Parameter
A. V. Kitaev, A. Vartanian

<http://arxiv.org/abs/2304.05846>

Rationally–extended Dunkl oscillator on the line
C. Quesne

<http://arxiv.org/abs/2304.05923>

Explicit transformations for generalized Lambert series associated with the divisor function $\sigma_a^{(N)}(n)$ and their applications
Soumyarup Banerjee, Atul Dixit, Shivajee Gupta

<http://arxiv.org/abs/2304.06206>

Conjugate phase retrieval in a complex shift–invariant space
Yang Chen, Yanan Wang

<http://arxiv.org/abs/2304.06515>

Generalized integrals of Macdonald and Gegenbauer functions
Jan Dereziński, Christian Gaß, Błażej Ruba

<http://arxiv.org/abs/2304.06545>

Continued fractions for cycle–alternating permutations
Bishal Deb, Alan D. Sokal

<http://arxiv.org/abs/2304.07430>

On partial transposes of unitarily invariant random matrices
James A. Mingo, Mihai Popa

<http://arxiv.org/abs/2304.07516>

Simple Combinatorial Construction of the $k^{o(1)}$ –Lower Bound for Approximating the Parameterized k –Clique
Yijia Chen, Yi Feng, Bundit Laekhanukit, Yanlin Liu

<http://arxiv.org/abs/2304.07657>

Identities for vacillating tableaux via growth diagrams
Christian Krattenthaler

<http://arxiv.org/abs/2304.07870>

A note on odd zeta values over any number field and Extended Eisenstein series
Soumyarup Banerjee, Rajat Gupta, Rahul Kumar

<http://arxiv.org/abs/2304.08737>

Motivating Motives
John C. Baez

<http://arxiv.org/abs/2304.09545>

Certain Extensions of Results of Siegel, Wilton and Hardy
Pedro Ribeiro, Semyon Yakubovich

<http://arxiv.org/abs/2304.10003>

On an identity of Chaundy and Bullard. III. Basic and elliptic extensions
Natsuko Hoshi, Makoto Katori, Tom H. Koornwinder, Michael J. Schlosser

<http://arxiv.org/abs/2304.10202>

Bounds on Maximum Weight Directed Cut
Jiangdong Ai, Stefanie Gerke, Gregory Gutin, Anders Yeo, Yacong Zhou

<http://arxiv.org/abs/2304.10426>

Binomial convolutions for rational power series
Ira M. Gessel, Ishan Kar

<http://arxiv.org/abs/2304.11102>

Solid angle measure of polyhedral cones
Allison Fitisone, Yuan Zhou

<http://arxiv.org/abs/2304.11253>

Counting Clean Words According to the Number of Their Clean Neighbors
Shalosh B. Ekhad, Doron Zeilberger

<http://arxiv.org/abs/2304.11361>

Nonlinear extension of the J-matrix method of scattering: A toy model
A. D. Alhaidari, T. J. Taiwo

<http://arxiv.org/abs/2304.11471>

The congruence properties of Romik's sequence of Taylor coefficients of Jacobi's theta function θ_3
Christian Krattenthaler, Thomas W. Müller

<http://arxiv.org/abs/2304.11869>

Generalized co-polynomials of R_{II} type and associated quadrature rules
Vinay Shukla, A. Swaminathan

<http://arxiv.org/abs/2304.13248>

Linearization and connection coefficients of polynomial sequences: A matrix approach
Luis Verde-Star

Other Relevant OP-SF E-Prints

<http://arxiv.org/abs/2303.00241>

Nonsymmetric q -Cauchy identity and representations of the Iwahori algebra
Evgeny Feigin, Ievgen Makedonskyi, Daniel Orr

<http://arxiv.org/abs/2303.00312>

A Ruelle dynamical zeta function for equivariant flows
Peter Hochs, Hemanth Saratchandran

<http://arxiv.org/abs/2303.00552>

(q, t) -deformed (skew) Hurwitz τ -functions

Fan Liu, A. Mironov, V. Mishnyakov, A. Morozov, A. Popolitov, Rui Wang, Wei-Zhong Zhao

<http://arxiv.org/abs/2303.01089>

Around Furstenberg's times p , times q conjecture: times p -invariant measures with some large Fourier coefficients

Catalin Badea, Sophie Grivaux

<http://arxiv.org/abs/2303.01185>

A polynomial time algorithm for calculating Fourier–Dedekind sums

Guoce Xin, Xinyu Xu

<http://arxiv.org/abs/2303.01445>

On Jacobi–Weierstrass mock modular forms

Claudia Alfes–Neumann, Jens Funke, Michael Mertens, Eugenia Rosu

<http://arxiv.org/abs/2303.01731>

The Brylinski beta function of a double layer

Pooja Rani, M. K. Vemuri

<http://arxiv.org/abs/2303.01790>

New combinatorial identity for the set of partitions and limit theorems in finite free probability theory

Octavio Arizmendi, Katsunori Fujie, Yuki Ueda

<http://arxiv.org/abs/2303.01846>

$(H_p - L_p)$ type inequalities for subsequences of Nörlund means of Walsh–Fourier series

David Baramidze, Lars–Erik Persson, Kristoffer Tangrand, George Tephnadze

<http://arxiv.org/abs/2303.02380>

Asymptotics of noncolliding q -exchangeable random walks

Leonid Petrov, Mikhail Tikhonov

<http://arxiv.org/abs/2303.02494>

Generalized Pole–Residue Method for Dynamic Analysis of Nonlinear Systems based on Volterra Series

Qianying Cao, Anteng Chang, Junfeng Du, Lin Lu

<http://arxiv.org/abs/2303.02606>

On fundamental solutions and Gaussian bounds for degenerate parabolic equations with time–dependent coefficients

Alireza Ataei, Kaj Nyström

<http://arxiv.org/abs/2303.02767>

Difference independence of the Euler gamma function

Qiongyan Wang, Xiao Yao

<http://arxiv.org/abs/2303.02780>

Closed formulae for multiple roots of univariate polynomials through subresultants

Jorge Caravantes, Gema M. Diaz–Toca, Laureano Gonzalez–Vega

<http://arxiv.org/abs/2303.02795>

GKZ hypergeometric systems of the three–loop vacuum Feynman integrals

Hai–Bin Zhang, Tai–Fu Feng

<http://arxiv.org/abs/2303.02921>

A simple extension of Ramanujan–Serre derivative map and some applications

B. Ramakrishnan, Brundaban Sahu, Anup Kumar Singh

<http://arxiv.org/abs/2303.03020>

The Restriction–Extension Operator on Lebesgue spaces with symmetries and applications to PDEs

Rainer Mandel

<http://arxiv.org/abs/2303.03134>

The Matrix–variate Dirichlet Averages and Its Applications

Princy T, Nicy Sebastian

<http://arxiv.org/abs/2303.03671>

Real double Hurwitz numbers with 3–cycles

Yanqiao Ding, Kui Li, Huan Liu, Dongfeng Yan

<http://arxiv.org/abs/2303.03708>

On the Rothe–Galerkin spectral discretisation for a class of variable fractional–order nonlinear wave equations

Karel Van Bockstal, Mahmoud A. Zaky, Ahmed S. Hendy

<http://arxiv.org/abs/2303.04122>

Sums of powers of integers via differentiation

José L. Cereceda

<http://arxiv.org/abs/2303.04602>

Quantum Computing and the Riemann Hypothesis

Michael McGuigan

<http://arxiv.org/abs/2303.04650>

On the asymptotic behavior of the double zeta function for large negative indices

Minoru Hirose, Hideki Murahara, Tomokazu Onozuka

<http://arxiv.org/abs/2303.04882>

Determining the Rolle function in Hermite interpolatory approximation by solving an appropriate differential equation

J. S. C. Prentice

<http://arxiv.org/abs/2303.05055>

Negative first moment of quadratic twists of L –functions

Peng Gao, Liangyi Zhao

<http://arxiv.org/abs/2303.05402>

On a conjectural series of Sun for the mathematical constant $\beta(4)$

Chuanan Wei

<http://arxiv.org/abs/2303.05943>

The inverse Mellin transform via analytic continuation

A. Behring, J. Blümlein, K. Schönwald

<http://arxiv.org/abs/2303.06383>

Baxter operators in Ruijsenaars hyperbolic system I. Commutativity of Q-operators
N. Belousov, S. Derkachov, S. Kharchev, S. Khoroshkin

<http://arxiv.org/abs/2303.06613>

A note on r -gaps between zeros of the Riemann zeta-function
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Tau functions from Joyce structures
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Hypergeometric identities related to Ruijsenaars system
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Some fast convergent series for the mathematical constants $\zeta(4)$ and $\zeta(5)$
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A prime sum involving Bernoulli numbers
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Symmetric integration of the 1+1 Teukolsky equation on hyperboloidal foliations of Kerr spacetimes
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Distribution and divisibility of the Fourier coefficients of certain Hauptmoduln

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The Generalized Riemann Hypothesis from zeros of the zeta function

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Denominators of special values of zeta-functions count KU-local homotopy groups of mod p Moore spectra

A. Salch

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Beta-functions of enhanced quartic tensor field theories

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Stability of Rankin-Selberg local γ -factors for split classical groups: the symplectic case

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Lattice Green functions for pedestrians: Exponential decay

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Combinatorial zeta functions counting triangles

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A new Legendre polynomial-based approach for non-autonomous linear ODEs

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Huaiqian Li, Bin Qian

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A Generalisation of Ramanujan’s (back of the envelope) Method for Divergent Series
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Characterization of the Bernoulli polynomials via the Raabe functional equation
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Stringent bounds for the non-zero Bernoulli numbers
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High moments of theta functions and character sums
Barnabás Szabó

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On the Positivity of the Discrete Green's Function for Unstructured Finite Element Discretizations in Three Dimensions
Andrew Miller

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Wormhole Model for Neon-20
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Normalized centered moments of the Fréchet extreme-value distribution and inference of its parameter
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A generalization of formulas for the discriminants of quasi-orthogonal polynomials with applications to hypergeometric polynomials
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Boundary current fluctuations for the half space ASEP and six vertex model
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Jacobi polynomials and harmonic weight enumerators of the first-order Reed-Muller codes and the extended Hamming codes
Tsuyoshi Miezaki, Akihiro Munemasa

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On a Bessel function series related to the Riemann xi function

Alexander E. Patkowski

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The Lerch-type zeta function of a recurrence sequence of arbitrary degree

Álvaro Serrano Holgado, Luis Manuel Navas Vicente

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Are Chebyshev-based stability analysis and Urabe's error bound useful features for Harmonic Balance?

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Inverse scattering transform for the integrable fractional derivative nonlinear Schrödinger equation

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The extreme values of two probability functions for the Gamma distribution

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Elliptic Sklyanin Algebra, Baxter Equation and Discrete Liouville Equation

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On ODEs satisfied by modular forms

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New proofs of several identities of Ramanujan

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Non-Archimedean Green's functions and Zariski decompositions

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Stable Densities, Fractional Integrals and the Mittag-Leffler Function

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Narayana's cows numbers which are concatenations of three repdigits in base ρ

Pagdame Tiebekabe, Kouèssi Norbert Adédji

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On the irrationality of certain 2-adic zeta values

Li Lai

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Realisations of Racah algebras using Jacobi operators and convolution identities

Q. Labriet, L. Poulain d'Andecy

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Sum of digamma asymptotic error terms of an arithmetic series

Zhiqi Huang

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Limiting configurations for the $SU(1,2)$ Hitchin equation

Xuesen Na

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Nikola Adžaga, Goran Dražić, Andrej Dujella, Attila Pethő

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Limit heights and special values of the Riemann zeta function

Roberto Gualdi, Martín Sombra

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Zoll magnetic systems on the two–torus: a Nash–Moser construction

Luca Asselle, Gabriele Benedetti, Massimiliano Berti

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The Wright function – hypergeometric representation and symbolical evaluation

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Matrix models for the nested hypergeometric tau–functions

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India and the Calculus of Trigonometric Functions

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Approximation by a special de la Vallée Poussin type matrix transform mean of Walsh–Fourier series

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Thi Altmenschmidt

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On some conjectures of Z.-W. Sun involving harmonic numbers
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Green function and Poisson kernel associated to root systems for annular regions
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Beta Jacobi ensembles and associated Jacobi polynomials, II
Fumihiko Nakano, Hoang Dung Trinh, Khanh Duy Trinh

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Quentin Labriet, Loic Poulain d'Andecy

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Rationally Extended Harmonic Oscillator potential, Isospectral Family and the Uncertainty Relations
Rajesh Kumar, Rajesh Kumar Yadav, Avinash Khare

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Parametric Continued Fractions for π^2 , $\zeta(3)$, and other Constants
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On Some Properties of the Trigamma Function
Kwara Nantomah, Gregory Abe-I-Kpeng, Sunday Sandow

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Polynomial Optimization, Certificates of Positivity, and Christoffel Function

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Improved Formula for the Multi-Section of the Linear Three-Term Recurrence Sequence

Gary Detlefs, Wolfdieter Lang

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Complex evaluation of angular power spectra: Going beyond the Limber approximation

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Statistical Depth Function Random Variables for Univariate Distributions and induced Divergences

Rui Ding

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Exponentially Convergent Numerical Method for Abstract Cauchy Problem with Fractional Derivative of Caputo Type

Dmytro Sytnyk, Barbara Wohlmuth

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Categorifying Zeta Functions of Hyperelliptic Curves

Jon Aycock, Andrew Kobin

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Automorphic Green functions on Hilbert modular surfaces

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Masato Kobayashi

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A study on the bilinear equation of the sixth Painlevé transcendents

Tatsuya Hosoi, Hidetaka Sakai

<http://arxiv.org/abs/2304.14755>

Orthogonal polynomial bases in the Mixed Virtual Element Method

Stefano Berrone, Stefano Scialò, Gioana Teora

Topic #6 ——— OP – SF Net 30.3 ——— May 15, 2023

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 30.4 should be sent by July 1, 2023.

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

*As of the date of the publication of OP–SF NET 30.3, the SIAG/OPSF elections have not occurred.

From: OP–SF Net Editors

Subject: Thought of the Month by **R. W. (Bill) Gosper**

“I can’t begin to estimate Mizan Rahman’s prowess as a q -slinger. All I know is that he alone could ‘ q ’ any hypergeometric identity that I could find. Sometimes the q -form was so unimaginable that I would have bet money there was none. ... And yet the memory that stands out was not a q . I exhibited to the usual gang of maniacs a really mysterious-looking infinite trig product identity, dug up with Macsyma. It wasn’t even obvious that the n th term converged to 1. And that gentle man completely stung me with a reply that began, “Since this identity is rather elementary, let us prove the more general result ...”. That’s when you know you’re in the Big Leagues.”

R. W. (Bill) Gosper, April 7, 2004.