O P-S F N E T - Volume 30, Number 2 - March 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.

Editors:

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

Topics:

Calendar of Events:

April 1-2 (Saturday-Sunday), 2023

2023 Spring Eastern Virtual Sectional Meeting, American Mathematical Society,
Associate Secretary for the AMS Scientific Program: Steven H. Weintraub, shw2@lehigh.edu.

AMS Special Session on Hypergeometric functions, q-Series and Adjacent Topics,
Organized by Howard Cohl, Robert Maier and Roberto S. Costas-Santos,
http://www.ams.org/meetings/sectional/2305_progfull.html

April 11-15, 2023

Workshop on Integrable Systems and Orthogonal Polynomials—Numerical and Analytical Perspectives
AIMS South Africa, Muizenberg, Cape Town, South Africa
https://aims.ac.za/event/workshop-on-integrable-systems-and-orthogonal-polynomials-numerical-and-analytical-perspectives/

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/

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 30.2 ——— March 15, 2023

From: José Luis López (jl.lopez@unavarra.es)
Subject: Announcement: Special Issue of Mathematics on ITSF in Applied Mathematics

Special Issue: Integral Transforms and Special Functions in Applied Mathematics
Journal: *Mathematics*

The journal *Mathematics* will publish a special issue entitled:
Integral Transforms and Special Functions in Applied Mathematics.

The guest editors for this special issue are José Luis López and Dmitrii Karp.

This special issue will be devoted to both, the theory, and applications of special functions, especially those that can be represented by means of an integral transform or that arise in the study of integral transforms. We invite papers on topics in both mathematics and sciences, where special functions and integral transforms play an important role. Although the main emphasis will be made on applications, on the use of special functions or integral transforms in any scientific discipline, papers related to the

fundamental theory, such as asymptotics, symmetries, representations, transformation and summation formulas, approximations, inequalities, zeros, monotonicity and complex-analytic properties, are also welcome.

Scope: Integral transforms; Special functions; Orthogonal polynomials; Applied mathematics; Asymptotic approximation; Analytic representation; Inequalities.

The deadline for manuscript submissions is: November 30, 2023.

The webpage for the special issue is can be found here:
https://www.mdpi.com/si/mathematics/Integral_Transform_Appl_Math

To submit a manuscript to this special issue, go to this link.

Topic #2 ——— OP - SF Net 30.2 ——— March 15, 2023

From: Paco Marcellán (pacomarc@ing.uc3m.es)
Subject: Announcement: Special Issue of Mathematics on OPSF, Recent Trends and Applications

Special Issue: Orthogonal Polynomials and Special Functions:
Recent Trends and Their Applications
Journal: *Mathematics*

The journal Mathematics will publish a Special Issue entitled: Orthogonal Polynomials and Special Functions: Recent Trends and Their Applications. The guest editor for this Special Issue is Yamilet Quintana.department of Mathematics. Universidad Carlos III de Madrid.

Orthogonal polynomials and special functions are two well-established streams of research in mathematical sciences. As is well-known, these subjects are considered classical, and there exist a large number of very interesting developments of them through the centuries, which are distinguished by an original approach and an in-depth study of the theoretical and/or applied problems considered.

Since orthogonal polynomials and special functions are often driven by applications, these subjects have provided numerous applications to various branches of mathematics, e.g., combinatorics, numerical analysis, representation theory, number theory, and applications to engineering, physics and astronomy, integrable systems, optics, quantum chemistry, computer science, etc. In this way, the number of theoretical and applied problems solved using orthogonal polynomials and special functions is constantly growing.

The aim of this Special Issue is to present recent trends and applications linked to these subjects, mainly those addressed to engineering mathematics and related topics.

The deadline for manuscript submissions is: November 30, 2023. The webpage for this Special Issue can be found here: link. Manuscripts should be submitted online at http://www.mdpi.com by registering and logging in to this website.

Topic #3 ——— OP - SF Net 30.2 ——— March 15, 2023

From: André Weideman (weideman@sun.ac.za)
Subject: Announcement: Complex Analysis Workshop (CAT) at the Isaac Newton Institute, U.K.

Complex Analysis: Techniques, Applications and Computations—Perspectives in 2023

In 2019 a successful CAT workshop (Complex analysis: techniques, applications and computations) was held at the Isaac Newton Institute for Mathematical Sciences in Cambridge, UK. A follow-on workshop (CATW04) is scheduled for July 24-28, 2023 at the same venue and is now accepting applications.

The CAT programme brings together participants from diverse geographical and scientific communities to develop and apply complex analysis to a host of problems from areas including pure and applied mathematics, physics, engineering, and medicine. The Follow-On workshop is an opportunity to consolidate the achievements of the CAT programme and enhance its impact. Its first main goal will be to assess the progress that has taken place in the key thematic areas of the programme. The second main goal will be to formulate new open problems for the community to address in subsequent years. Finally, the workshop will also provide an opportunity to establish new collaborations.

The workshop will mirror the structure of the original thematic programme and will cover the following three main overlapping areas: (1) Techniques of complex analysis, including, but not limited to, connections with classical, harmonic and asymptotic analysis, new transform methods, advances in the Wiener-Hopf and Riemann-Hilbert problems; (2) Applications of complex analysis, highlighting connections with diverse areas of modern physics and applied sciences as well as engineering; and (3) Computational complex analysis, including a range of topics bridging mathematical foundations of various numerical techniques and their software implementations.

The workshop page https://www.newton.ac.uk/event/catw04/ has more details including registration and a list of confirmed speakers including:

- Bengt Fornberg ((University of Colorado Boulder)
- John King (University of Nottingham)
- Bernard Deconinck (University of Washington)
- Nick Trefethen (University of Oxford)
- Tom Trogdon (University of Washington)

We anticipate organizing a poster session if there is demand. We hope to see you there.

André Weideman on behalf of the organizing committee

Topic #4 ——— OP - SF Net 30.2 ——— March 15, 2023

From: Jacob Stordal Christiansen (jacob_stordal.christiansen@math.lth.se)
Subject: Announcement: International Conference on Spectral Theory & Approximation, Lund, Sweden

International Conference on Spectral Theory and Approximation
Lund University, campus LTH, Lund, Sweden, August 14-18, 2023

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. PhD students and postdocs are especially encouraged to attend, and (limited) financial support will be available.

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, and Toeplitz Operators.

Conference dates: August 14–18, 2023

Conference homepage: http://icsta.se/

Invited speakers:

- Wafaa Assaad (LIU Beirut),
- Benjamin Eichinger (TU Wien),
- Maria Angeles Garcia-Ferrero (Universitat de Barcelona),
- Søren Fournais (Aarhus University),
- Arno Kuijlaars (KU Leuven),
- Alexander Pushnitski (King's College London),
- Maxim Zinchenko (UNM Albuquerque),
- Aron Wennman (KTH Stockholm).

Sincerely, The Organizers
Jacob Stordal Christiansen (Lund University),
Henrik Laurberg Pedersen (University of Copenhagen),
Mikael Persson Sundqvist (Lund University), and
Frank Wikström (Lund University)

Topic #5 ——— OP - SF Net 30.2 ——— March 15, 2023

From: Nico Temme (nico.temme@cwi.nl, nic@temme.net)
Subject: Report: SIAM Minisymposium on **Software and Computational Methods**

SIAM Minisymposium on Software and Computational Methods for Special Functions

On March 3, during the SIAM Conference on **Computational Science and Engineering**, February 27–March 3, 2023, RAI Convention Centre, Amsterdam, The Netherlands, a minisymposium, was organised by Amparo Gil, Javier Segura and Nico Temme.

This minisymposium had 4 invited speakers:

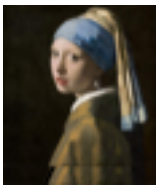
1. **Amparo Gil**, Universidad de Cantabria, Spain: Numerical Algorithms for Special Functions in the Santander–Amsterdam Project. Two current lines of research were discussed: the computation and inversion of cumulative distributions and the evaluation of confluent hypergeometric functions, with special attention to the U–function and applications in expansions of Fermi–Dirac integrals.

2. **Bonita V. Saunders**, National Institute of Standards and Technology, U.S.A.: NIST Digital Library of Mathematical Functions: Updates and Related Work. The DLMF was developed to expand and replace the widely cited Handbook of Mathematical Functions commonly known as Abramowitz and Stegun. Details were given on completed and ongoing modifications to DLMF content and technology, incorporating web tools and technologies for accessing, rendering, and searching math and graphics content.

3. **Lawrence Mulholland**, Numerical Algorithms Group Ltd, U.K.: Providing Library-Grade Software for Special Functions. The implementation of the Gauss hypergeometric function in the NAG Library was used as an example to illustrate how several challenges can be overcome, such as the use of different algorithms for different parts of the domain and evaluated values that can be on very different scales of magnitude.

4. **Daan Huybrechs**, Katholieke Universiteit Leuven, Belgium: Function approximation in generalized approximation spaces. Linear function approximations were considered with examples as country elevation (Belgium and The Netherlands), approximation of a Hankel function near its singularity, and the approximation of the Helmholtz field by plane waves. The efficient AZ algorithm was discussed with application to radial basis functions.

The minisymposium attracted about 25 visitors, there were many questions and discussions, and we can look back at a successful event.



At the end of the day, one of us (Amparo) visited the Vermeer Exhibition in the Rijksmuseum.

Topic #6 ——— OP - SF Net 30.2 ——— March 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 January and February 2023. This list has been separated into two categories.

OP-SF Net Subscriber E-Prints

http://arxiv.org/abs/2301.00121
Circular bidiagonal pairs
Paul Terwilliger, Arjana Žitnik

http://arxiv.org/abs/2301.00242
unexpected logarithmic identities and other surprises
C. Vignat

http://arxiv.org/abs/2301.00298
Infinite matrix products and hypergeometric zeta series
T. Wakhare, C. Vignat

http://arxiv.org/abs/2301.00586
Indeterminate Jacobi operators
Christian Berg, Ryszard Szwarc

http://arxiv.org/abs/2301.00678
Another Type of Forward and Backward Shift Relations for Orthogonal Polynomials in the Askey Scheme
Satoru Odake

http://arxiv.org/abs/2301.01179
A Fast Multipole Method for axisymmetric domains
Michael J. Carley

http://arxiv.org/abs/2301.01359
Proofs of Modulo 11 and 13 Cylindric Kanade-Russell Conjectures for A_2 Rogers-Ramanujan Type Identities
Ali Kemal Uncu

http://arxiv.org/abs/2301.01591
Extremal polynomials on the n-grid
Arno B. J. Kuijlaars

http://arxiv.org/abs/2301.01727
Classical Solutions of the Degenerate Fifth Painlevé Equation
Peter A. Clarkson

http://arxiv.org/abs/2301.02054
Positivity problem of three-term recurrence sequences
Yanni Pei, Yaling Wang, Yi Wang

http://arxiv.org/abs/2301.02203
Divisibility of character values of the symmetric group by prime powers
Sarah Peluse, Kannan Soundararajan

http://arxiv.org/abs/2301.02776
Coherent pair of measures for orthogonal polynomials on lattices
D. Mbouna

http://arxiv.org/abs/2301.03176
A note on infinite series whose terms involve truncated degenerate exponentials
Dae San Kim, Hye Kyung Kim, Taekyun Kim

http://arxiv.org/abs/2301.04487
Testing separability for continuous functional data
Holger Dette, Gauthier Dierickx, Tim Kutta

http://arxiv.org/abs/2301.04532
Modularity of Nahm Sums for the Tadpole Diagram
Antun Milas, Liuquan Wang

http://arxiv.org/abs/2301.05022
Progress on the study of the Ginibre ensembles II: GinOE and GinSE
Sung-Soo Byun, Peter J. Forrester

http://arxiv.org/abs/2301.05633
Experimenting with the Dym-Luks Ball and Cell Game (almost) Sixty Years Later
Shalosh B. Ekhad, Doron Zeilberger

http://arxiv.org/abs/2301.05790
Mehler-Fock transforms and retarded radiative Green functions on hyperbolic and spherical spaces
Loyal Durand

http://arxiv.org/abs/2301.06728
Some Appell-type orthogonal polynomials on lattices
D. Mbouna, A. Suzuki

http://arxiv.org/abs/2301.06760
Remarks on the paper "Recurrence equations and their classical orthogonal polynomial solutions on a quadratic or a q-quadratic lattice"
D. Mbouna

http://arxiv.org/abs/2301.06812
An uncountable number of proofs of Pythagoras Theorem
Gaurav Bhatnagar, Sagar Shrivastava

http://arxiv.org/abs/2301.07031
Local sign changes of polynomials
Stefan Steinerberger

http://arxiv.org/abs/2301.07582
The bilateral birth-death chain generated by the associated Jacobi polynomials
Manuel D. de la Iglesia, Claudia Juarez

http://arxiv.org/abs/2301.08016
A weighted extension of Fibonacci numbers
Gaurav Bhatnagar, Archna Kumari, Michael J. Schlosser

http://arxiv.org/abs/2301.08960
New symmetries for Dyson's rank function
F. G. Garvan, Rishabh Sarma

http://arxiv.org/abs/2301.11137
Linked partition ideals and a family of quadruple summations
George E. Andrews, Shane Chern

http://arxiv.org/abs/2301.11188
On the Riemann-Hilbert approach to asymptotics of tronquée solutions of Painlevé I
Alfredo Deaño

http://arxiv.org/abs/2301.13117
Affine Gordon-Bender-Knuth identities for cylindric Schur functions
JiSun Huh, Jang Soo Kim, Christian Krattenthaler, Soichi Okada

http://arxiv.org/abs/2301.13643
Some Expansion Formulas for Brenke Polynomial Sets
H. Chaggara, A. Gahami, N. Ben Romdhane

http://arxiv.org/abs/2302.00143
How many Dice Rolls Would It Take to Reach Your Favorite Kind of Number?
Lucy Martinez, Doron Zeilberger

http://arxiv.org/abs/2302.00656
Exact and simple formulas for the linearization coefficients of products of orthogonal polynomials and physical application
A. D. Alhaidari

http://arxiv.org/abs/2302.00757
Apéry-like sequences defined by four-term recurrence relations
Shaun Cooper

http://arxiv.org/abs/2302.01899
Linear functionals and Δ- coherent pairs of the second kind
Diego Dominici, Francisco Marcellán

http://arxiv.org/abs/2302.02312
New proofs of the septic Rogers-Ramanujan identities
Hjalmar Rosengren

http://arxiv.org/abs/2302.03999
Total positivity of some polynomial matrices that enumerate labeled trees and forests. II. Rooted labeled trees and partial functional digraphs
Xi Chen, Alan D. Sokal

http://arxiv.org/abs/2302.04067
A Unified Approach to Unimodality of Gaussian Polynomials
Christoph Koutschan, Ali K. Uncu, Elaine Wong

http://arxiv.org/abs/2302.04136
Combinatorics of the Delta conjecture at q=-1
Sylvie Corteel, Matthieu Josuat-Vergès, Anna Vanden Wyngaerd

http://arxiv.org/abs/2302.04193
On zeros of quasi-orthogonal Meixner polynomials
A. S. Jooste, K. Jordaan

http://arxiv.org/abs/2302.04217
Orthogonal systems for time-dependent spectral methods
Arieh Iserles

http://arxiv.org/abs/2302.04830
Counting matrix points on certain varieties over finite fields
Yifeng Huang, Ken Ono, Hasan Saad

http://arxiv.org/abs/2302.05750
Matrix valued discrete-continuous functions with the prolate spheroidal property and bispectrality
W. Riley Casper, F. Alberto Grunbaum, Milen Yakimov, Ignacio Zurrian

http://arxiv.org/abs/2302.05824
Pointwise error estimates and local superconvergence of Jacobi expansions
Shuhuang Xiang, Desong Kong, Guidong Liu, Li-Lian Wang

http://arxiv.org/abs/2302.06822
On extremal spectral radius of blow-up uniform hypergraphs
Shao-Han Xu, Fu-Tao Hu, Yi Wang

http://arxiv.org/abs/2302.07018
A generalized Hermite-Biehler theorem
Rostyslav Kozhan, Mikhail Tyaglov

http://arxiv.org/abs/2302.08045
On Whitney extensions, Whitney extensions of small distortions and Laguerre polynomials
S. B. Damelin

http://arxiv.org/abs/2302.08313
Bispectrality for Matrix Laguerre-Sobolev polynomials
Francisco Marcellán, Ignacio Zurrián

http://arxiv.org/abs/2302.08396
On First type characterizations of Askey-Wilson polynomials
D. Mbouna, A. Suzuki

http://arxiv.org/abs/2302.08448
Polynomial and rational measure modifications of orthogonal polynomials via infinite-dimensional banded matrix factorizations
Timon S. Gutleb, Sheehan Olver, Richard Mikael Slevinsky

http://arxiv.org/abs/2302.09047
On the Statistics of the Number of Fixed-Dimensional Subcubes in a Random Subset of the n-Dimensional Discrete Unit Cube
Svante Janson, Blair Seidler, Doron Zeilberger

http://arxiv.org/abs/2302.09603
Frobenius structure and p-adic zeta function
Frits Beukers, Masha Vlasenko

http://arxiv.org/abs/2302.09710
Normal ordering associated with λ-Stirling numbers inλ-Shift algebra
Taekyun Kim, Dae San Kim

http://arxiv.org/abs/2302.10333
Trigonometric identities: from Hermite via Meijer, Nørlund and Braaksma to Chu and Johnson and beyond
Alexander Dyachenko, Dmitrii Karp

http://arxiv.org/abs/2302.10387
Hypergeometry and the AGM over Finite Fields
Eleanor McSpirit, Ken Ono

http://arxiv.org/abs/2302.10740
The quantum harmonic oscillator with icosahedral symmetry and some explicit wavefunctions
Charles F. Dunkl

http://arxiv.org/abs/2302.11945
Infinite dimensional representations of cubic and quintic algebras and special functions
Ian Marquette, Junze Zhang, Yao-Zhong Zhang

http://arxiv.org/abs/2302.12051
On bounded complex Jacobi matrices and related moment problems
Sergey M. Zagorodnyuk

http://arxiv.org/abs/2302.12930
A Riemann–Hilbert approach to computing the inverse spectral map for measures supported on disjoint intervals
Cade Ballew, Thomas Trogdon

http://arxiv.org/abs/2302.13776
Part 1. Infinite series and logarithmic integrals associated to differentiation with respect to parameters of the Whittaker $\mathrm{M}_{\kappa,\mu}(x)$ function
Alexander Apelblat, Juan Luis González-Santander

http://arxiv.org/abs/2302.13067
Polarization and Greedy Energy on the Sphere
Dmitriy Bilyk, Michelle Mastrianni, Ryan W. Matzke, Stefan Steinerberger

http://arxiv.org/abs/2302.13830
Part 2. Infinite series and logarithmic integrals associated to differentiation with respect to parameters of the Whittaker $\mathrm{W}_{\kappa,\mu}(x)$ function
Alexander Apelblat, Juan Luis González-Santander

http://arxiv.org/abs/2302.13901
A remarkable double integral of the product of two Gaussian hypergeometric functions
E. Diekema

http://arxiv.org/abs/2302.14646
Construction of general forms of ordinary generating functions for more families of numbers and multiple variables polynomials
Yilmaz Simsek

http://arxiv.org/abs/2302.14789
Non Abelian Toda-type equations and matrix valued orthogonal polynomials
Alfredo Deaño, Lucía Morey, Pablo Román

http://arxiv.org/abs/2302.14842
Stability of the Lanczos algorithm on matrices with regular spectral distributions
Tyler Chen, Thomas Trogdon

Other Relevant OP-SF E-Prints

http://arxiv.org/abs/2301.00037
A Compact Introduction to Fractional Calculus
Alexander I. Zhmakin

http://arxiv.org/abs/2301.00069
A stabilized local integral method using RBFs for the Helmholtz equation with applications to wave chaos and dielectric microresonators
L. Ponzellini Marinelli, L. Raviola

http://arxiv.org/abs/2301.00642
Special polynomials and new real-rootedness results
Aurelien Xavier Gribinski

http://arxiv.org/abs/2301.00643
New methods for analytical calculation of elliptic integrals, applied in various physical problems
Bogdan G. Dimitrov

http://arxiv.org/abs/2301.00679
On a Cyclic Inequality Related to Chebyshev Polynomials
Mohammad Javaheri, Harry Shen

http://arxiv.org/abs/2301.01198
New applications of the Mellin transform to automorphic L-fuctions
Laurent Clozel

http://arxiv.org/abs/2301.01374
On Hypergeometric Duality Conjecture
Lev Borisov, Zengrui Han

http://arxiv.org/abs/2301.01794
Several classical identities via Mellin's transform
Khristo N. Boyadzhiev

http://arxiv.org/abs/2301.01834
Two Families of Cremona Maps and orthogonal Krall-Jacobi Polynomials
Helmut Ruhland

http://arxiv.org/abs/2301.02223
Measuring the Space of Metaplectic Whittaker Functions
Ilani Axelrod-Freed, Claire Frechette, Veronica Lang

http://arxiv.org/abs/2301.02617
Linear topological invariants for kernels of differential operators by shifted fundamental solutions
Andreas Debrouwere, Thomas Kalmes

http://arxiv.org/abs/2301.03165
Explicit bounds on $\zeta(s)$ in the critical strip and a zero-free region
Andrew Yang

http://arxiv.org/abs/2301.03255
The simultaneous multiplication formulas for Apostol-Bernoulli polynomials and generalized Frobenius-Euler polynomials
Gennadiy Ilyuta

http://arxiv.org/abs/2301.03521
Green's functions for first-order systems of ordinary differential equations without the unique continuation property
Steven Redolfi, Rudi Weikard

http://arxiv.org/abs/2301.03738
Hyperbolic summations derived using the Jacobi functions dc and nc
John M. Campbell

http://arxiv.org/abs/2301.03750
The singularities of Selberg- and Dotsenko-Fateev-like integrals
Ethan Sussman

http://arxiv.org/abs/2301.04092
Exceptional points for associated Legendre functions of the second kind
Tianye Liu, Daniel A. Norman, Philip D. Mannheim

http://arxiv.org/abs/2301.04107
Interpolating Matrix Models for WLZZ series
A. Mironov, V. Mishnyakov, A. Morozov, A. Popolitov, Rui Wang, Wei-Zhong Zhao

http://arxiv.org/abs/2301.04203
Zero Distribution of Random Bernoulli Polynomial Mappings
Turgay Bayraktar, Çiğdem Çelik

http://arxiv.org/abs/2301.04390
The typical size of character and zeta sums is $o(\sqrt{x})$
Adam J. Harper

http://arxiv.org/abs/2301.04569
A sharp bound for hypergeometric rank in dimension three
Christine Berkesch, María-Cruz Fernández-Fernández

http://arxiv.org/abs/2301.04629
On some identities for confluent hypergeometric functions and Bessel functions
Yoshitaka Okuyama

http://arxiv.org/abs/2301.04640
Properties of the multi-index special function $\mathcal{W}^{(\bar{\alpha},\bar{\nu})}(z)$
Riccardo Droghei

http://arxiv.org/abs/2301.04726
On the zeros of certain Sheffer sequences and their cognate sequences
Gi-Sang Cheon, Tamás Forgács, Khang Tran

http://arxiv.org/abs/2301.04749
Orthogonal polynomials in weighted Bergman spaces
Erwin Miña-Díaz

http://arxiv.org/abs/2301.04759
Difference equations and Omega functions
Ricardo Perez-Marco

http://arxiv.org/abs/2301.04887
Learning Partial Differential Equations by Spectral Approximates of General Sobolev Spaces
Juan-Esteban Suarez Cardona, Phil-Alexander Hofmann, Michael Hecht

http://arxiv.org/abs/2301.04964
On gamma factors for representations of finite general linear groups
David Soudry, Elad Zelingher

http://arxiv.org/abs/2301.05360
Second-Order SUSY-QM and zeroes of the Riemann zeta function
Juan D García-Muñoz, A Raya, Y Concha-S

http://arxiv.org/abs/2301.05566
Generalized Wall-Sun-Sun primes and monogenic power compositional trinomials
Lenny Jones

http://arxiv.org/abs/2301.05801
Expressions of content-parametrized Schur multiple zeta-functions via the Giambelli formula
Kohji Matsumoto, Maki Nakasuji

http://arxiv.org/abs/2301.05807
Clarkson-McLeod solutions of the fourth Painlevé equation and the parabolic cylinder-kernel determinant
Jun Xia, Shuai-Xia Xu, Yu-Qiu Zhao

http://arxiv.org/abs/2301.05825
Fourier-Mukai transforms and the decomposition theorem for integrable systems
Davesh Maulik, Junliang Shen, Qizheng Yin

http://arxiv.org/abs/2301.05906
Hopf algebras and multiple zeta values in positive characteristic
Bo-Hae Im, Hojin Kim, Khac Nhuan Le, Tuan Ngo Dac, Lan Huong Pham

http://arxiv.org/abs/2301.06032
Quantum radial basis function method for the Poisson equation
Lingxia Cui, Zongming Wu, Hua Xiang

http://arxiv.org/abs/2301.06934
Bessel functions on $GL(n)$, I
Jack Buttcane

http://arxiv.org/abs/2301.07538
Computing the Coefficients for Non-Periodic Highly Oscillatory Orthonormal Functions
Rockford Sison

http://arxiv.org/abs/2301.07561
On the Generalization of Radamacher's Proof to $\vartheta_1(z,\tau)$
Ali Saraeb, Maher Me'meh

http://arxiv.org/abs/2301.07954
Connection problem of the first Painlevé transcendents with large initial data
Wen-Gao Long, Yu-Tian Li

http://arxiv.org/abs/2301.08211
Berndt-Type Integrals and Series Associated with Ramanujan and Jacobi Elliptic Functions
Ce Xu, Jianqiang Zhao

http://arxiv.org/abs/2301.08580
Fractional Zernike functions
Hajar Dkhissi, Allal Ghanmi, Safa Snoun

http://arxiv.org/abs/2301.08597
Dynamics of the fifth Painlevé foliation
Emmanuel Paul, Jean-Pierre Ramis

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Topic #7 ——— OP - SF Net 30.2 ——— March 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 30.3 should be sent by May 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@nis

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 30.2, the SIAG/OPSF elections have not occurred.

From: OP-SF Net Editors
Subject: Thought of the Month by **Percy Deift**

"Special functions are important because they provide explicitly solvable models for a vast array of phenomena in mathematics and physics. By "special functions" I mean Bessel functions, Airy function, Legendre functions, and so on. If you have not met up with these functions, be assured, sooner or later, you surely will."

Percy Deift, in *Riemann-Hilbert Problems*, https://arxiv.org/abs/1903.08304, 2019.

Contributed by Piet Groeneboom and Nico Temme.