O P-S F N E T - Volume 31, Number 5 - September 15, 2024

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:
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Sarah Post spost@hawaii.edu

Topics:

Calendar of Events:

December 9-13, 2024
Joint meeting of the NZMS, AustMS and AMS
Auckland, New Zealand

Special Session on *Special Functions, q-Series and Beyond*
Organized by Howard Cohl, Ole Warnaar, Nicholas Witte

May 19-22, 2025
Constructive Functions 2025
Celebrating Ed Saff's 80th birthday
in conjunction with the 37th Shanks Lecture by Doron Lubinsky
Vanderbilt University, Nashville, Tennessee, USA
https://my.vanderbilt.edu/constructivefunctions2025/

June 23- 28, 2025
Combinatorics around the q-Onsager algebra
A celebration of the 70th birthday of Paul Terwilliger
Kranjska Gora, Slovenia
https://conferences.famnit.upr.si/event/15/overview

July 2-5, 2025
Third International Conference: Constructive Mathematical Analysis
Selcuk University, Konya, Turkey
https://iccma.selcuk.edu.tr

Topic #1 ——— OP - SF Net 31.5 ——— September 15, 2024

From: Teresa Perez (tperez@ugr.es)
Subject: Announcement: Call for the next OPSFA meeting: OPSFA-18

The OPSFA steering committee is inviting submissions for the organization of the next meeting, OPSFA-18, in 2026. If you are interested in hosting OPSFA-18, then please send a message to Luc Vinet (luc.vinet@umontreal.ca) and/or Peter Clarkson (P.A.Clarkson@kent.ac.uk).

The deadline is: September 30, 2024.

The application consists in a brief (approx. 2 pages) description of the proposed meeting.

The guidelines for preparing your proposal can be found here, and in particular, should include:

- The location and a description of the facilities (lecture rooms, meals);
- The proposed dates;
- The organizing committee members;
- The proposed format (plenary talks, parallel sessions and/or mini-symposia);
- Availability and price of hotels, student accommodation;
- Estimated registration fee; discount for students and/or participants from developing countries?
- The connection to the international OPSFA community at large;
- Travel: nearby airports, other means of transportation;
- Any special research directions intended;
- How will you deal with Equity, Diversity, Inclusion?

The adjudication will be made in October 2024 by the Steering Committee which is composed of Peter Clarkson (chair; SIAG/OPSF representative), Howard Cohl, Ana F. Loureiro, Christoph Koutschan, Luc Vinet, and Miguel Pinar.

Topic #2 ——— OP - SF Net 31.5 ——— September 15, 2024

From: Howard Cohl (howard.cohl@nist.gov)
Subject: Announcement: Death of DLMF General Editor **Barry I. Schneider** and DLMF Update 1.2.2

The DLMF Editors regret to report that DLMF General Editor Barry I. Schneider passed away on July 3, 2024. A graduate of the NYC Public Schools, Schneider received a B.S. in chemistry from Brooklyn College, an M.S. in chemistry from Yale University and a Ph.D. in theoretical chemistry from the University

of Chicago. Before coming to NIST in 2014, he was a postdoctoral research associate at the University of Southern California (1969–1970), and a staff member of the General Telephone and Electronics Laboratory (1970–1972). He joined the Theoretical Division of the Los Alamos National Laboratory (1972–1991) and then the National Science Foundation (1991–2013) where he was a Program Director in the Physics Division and then in the Office of Cyberinfrastructure. In early 2014, he came to NIST as General Editor of the DLMF project.

On September 15, 2024, DLMF Update; Version 1.2.2 was published. This update includes several corrections, clarifications and updates. (see Version 1.2.2 (September 15, 2024) for details). We are happy to report that several individuals have agreed to act as Associate Editor for DLMF chapters. Victor H. Moll will act as Associated Editor for DLMF Chapters 20, 23. Gergő Nemes will act as Associate Editor for DLMF Chapters 5, 8, 9, 10, 11. Joris Van der Jeugt will act as Associate Editor for Chapter 34. Hans Volkmer will act as Associate Editor for DLMF Chapters 22, 28, 29, 30, 31.

Topic #3 ——— OP – SF Net 31.5 ——— September 15, 2024

From: Ae Ja Yee (yee@psu.edu)
Subject: Report: Legacy of Ramanujan 2024 conference by **Yee**

The Legacy of Ramanujan 2024, celebrating the 85th birthdays of George Andrews and Bruce Berndt, was held at the Pennsylvania State University, June 6–9, 2024. The organizers of the conference were Amita Malik, James Sellers, Drew Sills and Ae Ja Yee.

Figure 1: Group photo for Legacy of Ramanujan 2024 meeting at Penn State University, State College, Pennsylvania, USA.

This conference brought together international experts with junior mathematicians in a variety of areas related to partitions and q–series providing a means for the mathematical communities to explore new achievements, current research trends, and problems in these areas. In addition, the conference honored the 85th birthdays of George Andrews and Bruce Berndt, who have made major impacts both within the theory of partitions and in the larger mathematical community. Andrews, Atherton Professor in Mathematics, has been one of the world's leading experts in partitions since his arrival at

the Pennsylvania State University in 1964. He was President of AMS from 2009 to 2011. He is an inaugural fellow of the AMS and has been a member of the National Academy of Sciences since 2003. Berndt, who has been a central figure at the University of Illinois since 1967, has also been named as an AMS Fellow and a Guggenheim Fellow. With a wide research interest ranging from analytic number theory, partitions, to q-series, Berndt has authored five books on Ramanujan's notebooks and five on Ramanujan's lost notebook jointly with Andrews. Needless to say, these ten books have become instrumental for research in the areas influenced by Ramanujan.

The conference was a great success. Over 100 participants attended. All the talks reflected well the conference theme, the Legacy of Ramanujan. The conference featured eleven plenary talks, twenty nine invited talks and eighteen selected posters. Our plenary speakers are:

> Krishna Alladi, George Andrews, Bruce Berndt, Howard Cohl, Amanda Folsom,
> Frank Garvan, Christian Krattenthaler, Ken Ono, Peter Paule, Ole Warnaar, Doron Zeilberger.

Due to the tight schedule, twenty talks were run in two parallel sessions. Eighteen selected posters were presented in a poster session.

The invited speakers came from over 29 different institutions, and there were participants from still other institutions present at the conference. Most of the poster presenters were graduate students or postdocs. The research areas of the invited speakers ranged from analytic number theory, modular forms, and enumerative/algebraic combinatorics to special functions. The topics presented in the poster session were more diverse.

In addition to the math talks and posters, there were three social events and the conference banquet. On Day 1, Becky Koehler and Brandt Kronholm did a violin and guitar performance, followed by a piano performance by Christian Krattenthaler on Day 2. Also, Cyndi Garvan held a mentoring workshop for mathematicians on Day 3. The conference banquet was held on Day 3 in Graduate by Hilton State College. Most of the participants attended.

The conference proceedings will be published as Special Issues of The Ramanujan Journal. Submission invitation emails have been sent to the conference participants and the editorial board members of the journal. The organizers will serve as guest editors for the special issues. The submission deadline is December 31, 2024.

The conference organizers would like to thank all the following entities providing the financial and logistical support for making the conference happen:

> NSA, NSF, Penn State Eberly College of Science & Math Department, and George Andrews.

Topic #4 ——— OP - SF Net 31.5 ——— September 15, 2024

From: Thorsten Neuschel (thorsten.neuschel@dcu.ie)
Subject: Report: ARNO 2024 conference by **Neuschel**

The conference **ARNO 2024: Asymptotics, Randomness, Nonlinearity, Orthogonality** took place at KU Leuven in Flanders, Belgium, from May 27th to May 31st , 2024. The acronym (ARNO) bears a resemblance to the name Arno, which in this case refers to Prof. Arno Kuijlaars. While the foremost aim of the conference was to explore and discuss the synergy of classical analysis and modern mathematical physics, and how it stimulates the most intriguing developments in the above-mentioned areas, the second purpose of the gathering was to celebrate Arno's 60th birthday and his influential contributions. To this end, a large number of his former PhD students and Postdocs, many colleagues and friends from all over the globe travelled to Leuven to congratulate.

Figure 2: Group photo of ARNO 2024 in Leuven, Belgium.

The team of organizers – Tom Claeys, Maurice Duits, Manuela Girotti, Leslie Molag, Guilherme Silva, and Walter Van Assche – did a tremendous job planning and executing the entire event smoothly, from arrival and accommodation to coffee and lunch breaks, the conference dinner, and departure.

Every one of the 16 internationally renowned invited speakers made an outstanding effort to report on recent research developments, with Arno's contributions highlighted along the way. The speakers were Gernot Akemann, Marco Bertola, Pavel Bleher, Thomas Bothner, Alexey Bufetov, Sunil Chhita, Vadim Gorin, Tamara Grava, Alice Guionnet, Kurt Johansson, Mylène Maïda, Andrei Martínez-Finkelshtein, Ken McLaughlin, Peter Miller, Alessandra Occelli, and Lun Zhang.

Moreover, 18 contributed talks were given, and all talks covered a range of topics including Riemann-Hilbert problems, random matrix ensembles and universality, orthogonal polynomials, Toeplitz and Hankel matrices, tiling models, potential theory, and Painlevé equations. In addition, nine posters were presented directly in front of the lecture hall, sparking many interesting and informative discussions.

Over the course of the week, there were a total of 1,340 minutes of presentations, and Arno allegedly did not miss a single one.

Topic #5 ——— OP – SF Net 31.5 ——— September 15, 2024

From: Szilárd Gy. Révész (evesz.szilard@renyi.mta.hu), Béla Nagy (nbela@math.u-szeged.hu),
Zoltán Nemeth (znemeth@math.u-szeged.hu)
Subject: Report: 2nd Analysis Mathematica International Conference by **Révész**, **Nagy**, **Nemeth**

Report on the Second Analysis Mathematica Conference in Budapest, Hungary, July 29–August 2, 2024

The Second Analysis Mathematica Conference focused on the research fields that fall within the scope of the journal Analysis Mathematica. One aim was to call attention to the journal's ever-widening spectrum and to attract good papers from leading researchers. Also, it was an excellent opportunity for the editors and authors of the journal to present their latest results. Reflecting the broad scope of the journal, there were lectures from the fields of analytic number theory, special functions, and Nevanlinna theory, to mention a few. High-level plenary lectures summarized state-of-the-art in diverse fields of mathematical analysis, including the solution of the 60-year-old Erdős-Moser distance

Figure 3: Group photo of 2nd Analysis Mathematica International Conference in Budapest, Hungary.

problem and the disproof of a strong form of the times-2, times-3 conjecture of Fürstenberg.

Apart from the 12 plenary lectures, 16 invited lectures and 28 short contributed talks were held in the two parallel sections. The works of three Ukrainian colleagues were displayed in poster form in their absence. The 90 registered participants came from 26 different countries. Five Ph.D. students studying in Hungary from four countries, as well as 6 foreign Ph.D. students from five other countries had the opportunity to present their first results; for many of them, this presentation was their first-ever talk at an international conference.

After the scientific programs, the organizers provided various social events every day, including the folklore boat tour on the Danube, which was the most pleasing to the participants and their accompanying persons.

Topic #6 ——— OP - SF Net 31.5 ——— September 15, 2024

From: Roberto S. Costas-Santos (rscosa@gmail.com)
Subject: Report: Mini-symposium on SF, OP, q-series and applications at 9ECM by **Costas-Santos**

The aim of the mini-symposium entitled, *Special functions, orthogonal polynomials, q-series and applications* (MS-68) held at 9ECM Sevilla, was intended to present some of the latest trends in these subjects. The mini-symposium consisted of 11 talks delivered across three sessions over the first two days (July 15-16, 2024) of the 9th European Congress of Mathematics held in Seville, Spain. The speakers, in order of speaking, were:

- Antonio J. Durán - Asymptotic for the rightmost zeros of Bell and Eulerian polynomials
- Lidia Fernández - Orthogonal Laurent polynomials of two real variables
- Roberto S. Costas-Santos - Multi-integral representations for Jacobi functions of the first and second kind
- Robert S. Maier - Operator ordering identities: Coefficients, triangular recurrences, and Jacobi polynomial values
- Juan José Moreno Balcázar - An asymptotic approach to generalized Charlier-Sobolev orthogonal polynomials

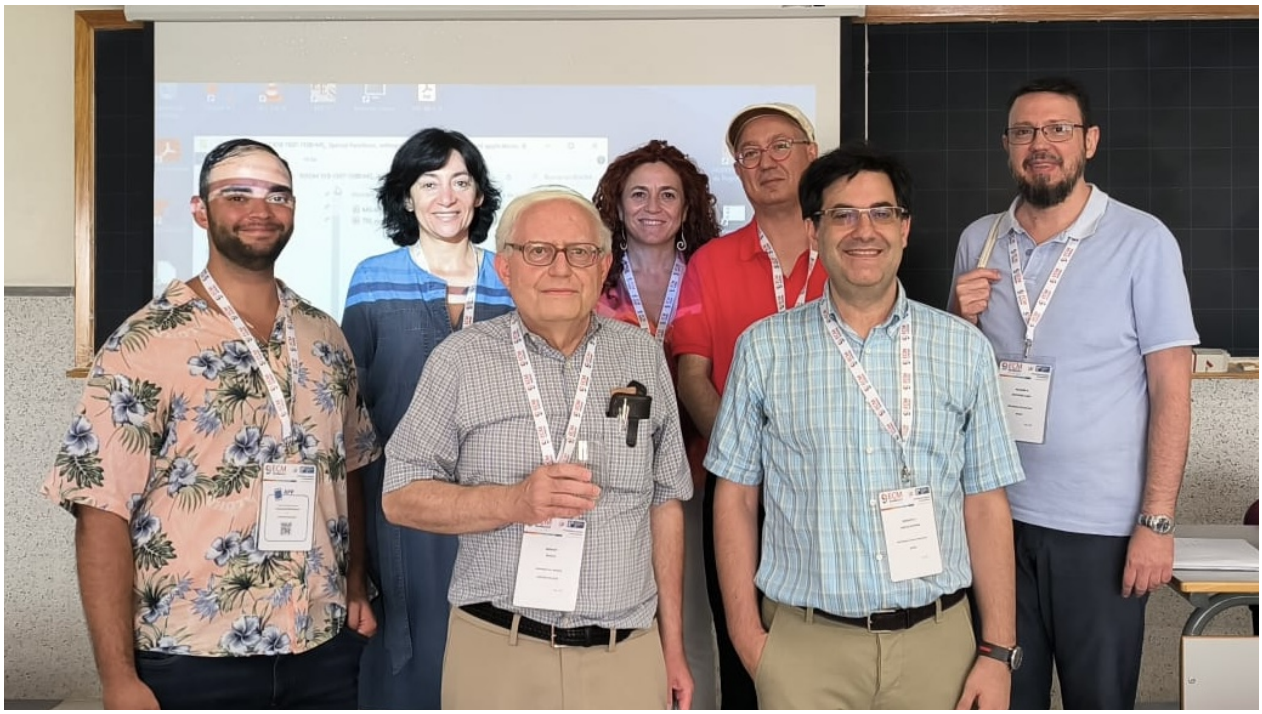

Figure 4: Attendees of mini-symposium at 9ECM, left-to-right: Juan Antonio Villegas, María das Neves Rebocho, Robert S. Maier, Lídia Fernández, Juan José Moreno Balcázar, Roberto S. Costas-Santos, Joaquin F. Sánchez Lara.

- Manuel Mañas - Total positivity and orthogonal polynomials, new landscapes
- Joaquín F. Sánchez-Lara - An electrostatic model for the roots of polynomial solutions of a difference equation
- Miguel Piñar - On classical generalized bivariate symmetric polynomials
- Juan Antonio Villegas - Extending the multiple orthogonality to bivariate polynomials
- Maria Das Neves Rebocho - Semi-classical orthogonal polynomials on special non-uniform lattices, and some of their extensions
- J. Javier Segura Sala - Uniform relations between the Gauss-Legendre nodes and weights

The presentations were conducted in a cordial atmosphere, facilitating constructive discussions that yielded valuable insights.

The organizational work for the mini-symposium was done by Roberto S. Costas-Santos (Universidad Loyola Andalucía, Spain), Howard S. Cohl (NIST, USA) and Robert S. Maier (University of Tucson, USA).

Topic #7 ——— OP - SF Net 31.5 ——— September 15, 2024

From: Mirta María Castro Smirnova (mirta@us.es)
Subject: Report: Mini-symposium on OP and SF at 9ECM by **Castro Smirnova**

This is a report on the mini-symposium on Orthogonal Polynomials and Special Functions at the 9th European Congress of Mathematics (9ECM) held in Seville, Spain, from July 15th to 19th, 2024. The 9ECM attracted more than 1200 participants and was a Conference with a very high scientific content.

Figure 5: Francisco (Paco) Marcellán presenting at the Mini-symposium on Orthogonal Polynomials and Special Functions at the 9th European Congress of Mathematics.

Among its huge list of scientific activities, there were 64 mini-symposia, where two of them were dedicated to the subject of Orthogonal Polynomials and Special Functions. The mini Symposia "SF, OP, q-series and applications" (MS-68) was organized by Howard Cohl (NIST, USA), Robert S. Maier (University of Tucson, USA) and Roberto S. Costas-Santos (Universidad Loyola Andalucía, Spain), see the report in this Volume. The other one, "OP and SF" (MS-11) was organized by Mirta M. Castro Smirnova, Ignacio Zurrián (Universidad de Sevilla) and Manuel Domínguez de la Iglesia (Universidad Nacional Autónoma de México). The two sessions of this mini-symposium, with a total of 8 outstanding 25-minutes talks, took place the second and the third day of the 9ECM (July 16-17, 2024) respectively.

The talks in the mini-symposium on OP and SF covered several different subjects in the area, such as multiple OP, matrix-valued OP, Sobolev type OP, OP in the unit circle and multivariable matrix-valued OP. There were also highlighted some connections with Random Matrix Theory, Harmonic Analysis and Partial Differential Equations.

The speakers and the titles of the talks of the first session of Tuesday July 16th , 2024, were:

- Antonio J. Durán Guardeño (Universidad de Sevilla, Spain), Brenke polynomials with real zeros and the Riemann Hypothesis.
- Francisco J. Marcellán Español (Universidad Carlos III de Madrid, Spain), Sobolev orthogonal polynomials and coherent pairs of measures of the second kind on the real line.
- Ana Foulquié Moreno (University of Aveiro, Portugal), Spectral Theorem and Bidiagonal Factorization of Banded Matrices.
- Riley Casper (California State University, Fullerton, Fullerton, United States), Matrix valued prolate functions and bispectrality.

The speakers and the titles of the talks of the second session of Tuesday July 17th , 2024, were:

- Nedialko Bradinoff (KTH Royal Institute of Technology, Sweden), Benford's Law and the Circular β-Ensembles.
- Marteen Van Pruijssen (Radboud University, Nijmegen, Netherlands), Intermediate Jacobi Polynomials.
- Juan Carlos García Ardila (Universidad Politécnica de Madrid, Spain), On Sobolev bilinear forms and classical orthogonal polynomials with non standard parameters.
- Luz Roncal (BCAM, Bilbao, Spain), Landis-type results for discrete equations.

For more information about the scientific activities of the 9ECM you may visit the website: https://www.ecm2024sevilla.com/index.php/program.

Topic #8 ——— OP - SF Net 31.5 ——— September 15, 2024

From: Clemente Cesarano (clemente.cesarano@uninettunouniversity.net)
Subject: Report: OPSF-S10 Summer School by **Cesarano**

Figure 6: Lecturers and Student Attendees at OPSF-S10, left-to-right: Francisco Jose Marcellán Español (lecturer), Mehmet Ali Özarslan (lecturer), Zeynep Özat, Şule Güngör, Henrik Laurberg Pedersen (lecturer), Paolo Emilio Ricci (lecturer), Neslihan Biricik Hepsisler, Duygu Malyalı, Nicola Mastronardi (lecturer).

The Uninettuno Summer School OPSF-S10 took place from July 29 to August 2, 2024 at the Uninettuno University, Rome, Italy. This school is part of the SIAM SIAG/OPSF Activity Group (OPSFA) circuit. OPSF-S10 saw the participation of 25 students from different countries, including Turkey, Spain, Sweden, Portugal, United Kingdom and Italy. Of the 25 students, fifteen were in attendance and 10 followed the summer school online.

The OPSF-S10 summer school included five separate lectures as follows:

- Orthogonal Polynomials in Weighted Sobolev Spaces: Theory and Applications, Francisco Jose Marcellán Español, Universidad Carlos III, Madrid, Spain.

Figure 7: In person student attendees of OPSF-S10; front row, left-to right: Zeynep Özat, Şule Güngör, Neslihan Biricik Hepsisler, Duygu Malyalı, Maria Heredia, Adeeba Haider, Francesca Barbaccia; back row, left-to-right: William Ramirez, Valero Loi, Domenico Mezzanotte, Juan Diaz, Miguel Rojas, Olof Rubin, Clemente Cesarano (Director).

Figure 8: Student Attendees and School Director at OPSF-S10, left-to-right: Donatella Occorsio, Miguel Rojas, Clemente Cesarano (school director), Olof Rubin.

- Computational Methods for Orthogonal Polynomials and Special Functions
  Nicola Mastronardi, Istituto per le Applicazioni del Calcolo (IAC), CNR, Rome, Italy.
- General Bivariate Mittag-Leffler Functions and their Role in Fractional Calculus
  Mehmet Ali Özarslan, Eastern Mediterranean University, Famagusta, Northern Cyprus, Turkey.
- Special Functions seen from a Complex Viewpoint
  Henrik Laurberg Pedersen, University of Copenhagen, Copenhagen, Denmark.
- Special Functions, Polynomials and Numbers in the Fractional Context
  Paolo Emilio Ricci, Uninettuno University, Rome, Italy.

The students were given a certificate of participation and were awarded 5 ECTS (The European Credit Transfer and Accumulation System). The ECTS is a standard means for comparing academic credits, i.e., the "volume of learning based on the defined learning outcomes and their associated workload" for higher education across the European Union and other participating European countries.)

The OPSF-S10 organizers are preparing a Special Issue in the journal Communications in Applied and Industrial Mathematics to publish a hard copy of the lecture notes.

Topic #9 ——— OP - SF Net 31.5 ——— September 15, 2024

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 July and August 2024. This list has been separated into two categories.

OP-SF Net Subscriber E-Prints

http://arxiv.org/abs/2407.00777
Toda and Laguerre-Freud equations for multiple discrete orthogonal polynomials with an arbitrary number of weights
Itsaso Fernández-Irisarri, Manuel Mañas

http://arxiv.org/abs/2407.01289
Representations of quadratic Heisenberg-Weyl algebras and polynomials in the fourth Painlevé transcendent
Ian Marquette

http://arxiv.org/abs/2407.02365
Berndt-type Integrals: Unveiling Connections with Barnes Zeta and Jacobi Elliptic Functions
Zachary P. Bradshaw, Christophe Vignat

http://arxiv.org/abs/2407.05348
Complex and rational hypergeometric functions on root systems
G. A. Sarkissian, V. P. Spiridonov

http://arxiv.org/abs/2407.05768
Hankel determinants of backward shifts of the coefficients of a partial theta function
Johann Cigler

http://arxiv.org/abs/2407.06811
Dunkl approach to slice regular functions
Giulio Binosi, Hendrik De Bie, Pan Lian

http://arxiv.org/abs/2407.06995
Characterization of classical orthogonal polynomials in two variables
Maurice Kenfack Nangho, Kerstin Jordaan, Bleriod Jiejip Nkwamouo

http://arxiv.org/abs/2407.07107
Congruences modulo powers of 5 and 7 for the crank and rank parity functions and related mock theta functions
Dandan Chen, Rong Chen, Frank Garvan

http://arxiv.org/abs/2407.08437
Derivatives of theta functions as Traces of Partition Eisenstein series
Tewodros Amdeberhan, Ken Ono, Ajit Singh

http://arxiv.org/abs/2407.08511
Indeterminate Stieltjes moment problems revisited
Christian Berg

http://arxiv.org/abs/2407.09875
Stationary reduction method based on nonisospectral deformation of orthogonal polynomials, and discrete Painlevé-type equations
Xiao-Lu Yue, Xiang-Ke Chang, Xing-Biao Hu

http://arxiv.org/abs/2407.09903
Minimal cubature rules and Koornwinder polynomials
Yuan Xu

http://arxiv.org/abs/2407.13936
Uniform asymptotic expansions for the zeros of parabolic cylinder functions
T. M. Dunster, A. Gil, D. Ruiz-Antolin, J. Segura

http://arxiv.org/abs/2407.13946
Christoffel Transform and Multiple Orthogonal Polynomials
Rostyslav Kozhan, Marcus Vaktnäs

http://arxiv.org/abs/2407.13961
Determinantal Formulas for Rational Perturbations of Multiple Orthogonality Measures
Rostyslav Kozhan, Marcus Vaktnäs

http://arxiv.org/abs/2407.15001
Integral and hypergeometric representations for multiple orthogonal polynomials
Amílcar Branquinho, Juan E. F. Díaz, Ana Foulquié-Moreno, Manuel Mañas, Thomas Wolfs

http://arxiv.org/abs/2407.16738
Relative asymptotics of multiple orthogonal polynomials for Nikishin systems of two measures
Abey López-García, Guillermo López Lagomasino

http://arxiv.org/abs/2407.17016
Griffiths polynomials of q-Racah type
Nicolas Crampe, Luc Frappat, Julien Gaboriaud, Eric Ragoucy

http://arxiv.org/abs/2407.17366
Automorphisms of the DAHA of type $\check{C}_1C_1$ and their action on Askey-Wilson polynomials and functions. I. The flip $(a,b,c,d) \mapsto (a,b,qd^{-1},qc^{-1})$
Tom H. Koornwinder, Marta Mazzocco

http://arxiv.org/abs/2407.18453
Cubic algebras, induced representations and general solution of the exceptional Laguerre equation X_1
Ian Marquette

http://arxiv.org/abs/2407.19805
Localized excitation on the Jacobi elliptic periodic background for the $(n+1)$-dimensional generalized Kadomtsev-Petviashvili equation
Jiabin Lia, Yunqing Yang, Wanyi Sun, Yuqian Wang

http://arxiv.org/abs/2407.20583
Gaussian hypergeometric functions and cyclotomic matrices involving squares over finite fields
Hai-Liang Wu, Li-Yuan Wang

http://arxiv.org/abs/2407.21725
Mizuno's rank three Nahm sums II: identities of index $(1,2,2)$ and modular forms
Boxue Wang, Liuquan Wang

http://arxiv.org/abs/2408.01132
Spectral methods on a triangle and W-systems
Jing Gao, Arieh Iserles

http://arxiv.org/abs/2408.01755
Unimodality preservation by ratios of functional series and integral transforms
Dmitrii Karp, Anna Vishnyakova, Yi Zhang

http://arxiv.org/abs/2408.02918
Traces of Hecke Operators via Hypergeometric Character Sums
Jerome W. Hoffman, Wen-Ching Winnie Li, Ling Long, Fang-Ting Tu

http://arxiv.org/abs/2408.05225
On differentiation with respect to parameters of the functions of the Mittag-Leffler type
Sergei V. Rogosin, Filippo Giraldi, Francesco Mainardi

http://arxiv.org/abs/2408.05573
On bounds for ratios of contiguous hypergeometric functions
Javier Segura

http://arxiv.org/abs/2408.05821
Elliptic Integrable Systems and Special Functions
Martin Hallnäs, Edwin Langmann

http://arxiv.org/abs/2408.06472
Orthogonal Polynomials on the Unit Circle, Mutually Unbiased Bases, and Balanced States
Graeme Reinhart, Brian Simanek

http://arxiv.org/abs/2408.06562
QM abelian varieties, hypergeometric character sums and modular forms
Jerome William Hoffman, Fang-Ting Tu

http://arxiv.org/abs/2408.07226
Some q-supercongruences for multiple basic hypergeometric series
Chuanan Wei

http://arxiv.org/abs/2408.07634
Sufficient conditions for the existence of packing asymptotics on linear sets of Lebesgue measure zero
Austin Anderson, Steven Damelin

http://arxiv.org/abs/2408.07963
On the crystal limit of the q-difference sixth Painlevé equation
Nalini Joshi, Pieter Roffelsen

http://arxiv.org/abs/2408.08012
On the adelic Gaussian hypergeometric function
Masanori Asakura, Noriyuki Otsubo

http://arxiv.org/abs/2408.08807
Traces of partition Eisenstein series
Tewodros Amdeberhan, Michael Griffin, Ken Ono, Ajit Singh

http://arxiv.org/abs/2408.09165
Boundedness of fractional integrals and fractional derivatives on Laguerre Lipschitz spaces
He Wang, Jizheng Huang, Yu Liu

http://arxiv.org/abs/2408.09789
Unimodal sequences and mixed false theta functions
Kevin Allen, Robert Osburn

http://arxiv.org/abs/2408.11496
Lower Bounds for Weighted Chebyshev and Orthogonal Polynomials
Gökalp Alpan, Maxim Zinchenko

http://arxiv.org/abs/2408.12952
Orthogonal polynomials in the normal matrix model with two insertions
Mario Kieburg, Arno B. J. Kuijlaars, Sampad Lahiry

http://arxiv.org/abs/2408.14094
Some elementary remarks on the powers of a partial theta function and corresponding q-analogs of the binomial coefficients
Johann Cigler

http://arxiv.org/abs/2408.15571
Power spectra of Dyson's circular ensembles
Peter J. Forrester, Nicholas S. Witte

http://arxiv.org/abs/2408.15723
Turán-Type Inequalities for Gaussian Hypergeometric Functions, and Baricz's Conjecture
Song-Liang Qiu, Xiao-Yan Ma, Xue-Yan Xiang

http://arxiv.org/abs/2408.16531
Fermionic logarithmic negativity in the Krawtchouk chain
Gabrielle Blanchet, Gilles Parez, Luc Vinet

http://arxiv.org/abs/2408.16585
ASEP via Mallows coloring
Alexei Borodin, Alexey Bufetov

Other Relevant OP-SF E-Prints

http://arxiv.org/abs/2407.00060
Sandwiching the Riemann hypothesis
R. C. McPhedran

http://arxiv.org/abs/2407.00403
Multiple zeta values with varying constant fields
Daichi Matsuzuki

http://arxiv.org/abs/2407.00785
Swampland Program for Hypergeometric Inflation Scenarios in Rescaled Gravity
Saad Eddine Baddis, Adil Belhaj

http://arxiv.org/abs/2407.01028
An Integral representation of $\mathcal{R}(s)$ due to Gabcke
Juan Arias de Reyna

http://arxiv.org/abs/2407.01387
Coloured shuffle compatibility, Hadamard products, and ask zeta functions
Angela Carnevale, Vassilis Dionyssis Moustakas, Tobias Rossmann

http://arxiv.org/abs/2407.02300
Asymptotic Matching the Self-Consistent Expansion to Approximate the Modified Bessel Functions of the Second Kind
Chanania Steinbock, Eytan Katzav

http://arxiv.org/abs/2407.03002
Sums of squares and sequences of modular forms
Alexander Kalmynin

http://arxiv.org/abs/2407.03100
The boundary disorder correlation for the Ising model on a cylinder
Rafael Leon Greenblatt

http://arxiv.org/abs/2407.03301
Macdonald polynomials for super-partitions
Dmitry Galakhov, Alexei Morozov, Nikita Tselousov

http://arxiv.org/abs/2407.03328
The kernel polynomial method based on Jacobi polynomials
I. O. Raikov, Y. M. Beltukov

http://arxiv.org/abs/2407.03336
Efficient and Precise Calculation of the Confluent Hypergeometric Function
Alan Herschtal

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Recursive construction of biorthogonal polynomials for handling polynomial regression
Laura Rebollo-Neira, Jason Laurie

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Semiclassical limit of a non-polynomial q-Askey scheme
Jonatan Lenells, Julien Roussillon

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A Number Field Analogue of Ramanujan's identity for $\zeta(2m+1)$
Diksha Rani Bansal, Bibekananda Maji

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Certain infinite products in terms of MacMahon type series
Seokho Jin, Badri Vishal Pandey, Ajit Singh

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Supersymmetric polynomials and algebro-combinatorial duality
Dmitry Galakhov, Alexei Morozov, Nikita Tselousov

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Finer limit circle/limit point classification for Sturm-Liouville operators
Mateusz Piorkowski, Jonathan Stanfill

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Hao Pan, Andrei Prokhorov

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Michel Alexis, Lin Lin, Gevorg Mnatsakanyan, Christoph Thiele, Jiasu Wang

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Eda Yilmaz, Georgii Oblapenko, Manuel Torrilhon

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Tomoki Nakanishi

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Cheng Luo, Shyam Swarup Mondal, Manli Song

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Agniva Dasgupta, Wing Hong Leung, Matthew P. Young

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A note on the Irrationality of $\zeta(5)$ and Higher Odd Zeta Values
Shekhar Suman

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Minimal surfaces and alternating multiple zetas
Steven Charlton, Lynn Heller, Sebastian Heller, Martin Traizet

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Jihyeug Jang, Minho Song

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Giovanni Lodone

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Igor Kukavica, Fei Wang, Yichun Zhu

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Tatiana Moseeva

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Daniel Alpay, Antonino De Martino, Kamal Diki, Daniele C. Struppa

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Hypergeometric sheaves and extraspecial groups in even characteristic
Lee Tae Young

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New zero-density estimates for the Beurling ζ function
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Series over Bessel functions as series in terms of Riemann's zeta function
Slobodan B. Tričković, Miomir S. Stanković

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Biharmonic functions and bi-eigenfunctions on some model spaces
Ye-Lin Ou

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On the Laplace-type transform and its applications
Slobodan B. Tričković, Miomir S. Stanković

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Modified Macdonald polynomials and Mahonian statistics
Emma Yu Jin, Xiaowei Lin

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Henry Cohn

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Alexis M. H. Teter, Wenqing Wang, Abhishek Halder

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Some new properties of the beta function and Ramanujan R-function
Zhen-Hang Yang, Miao-Kun Wang, Tie-Hong Zhao

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Iaroslav V. Blagouchine

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Exchangeable arrays and integrable systems for characteristic polynomials of random matrices
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Solutions of an extended Duffing-van der Pol equation with variable coefficients
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Supercongruences involving binomial coefficients and Euler polynomials
Chen Wang, Hui-Li Han

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Optimization of the Implicit Constant for Upper Bounds for Moments of the Riemann zeta Function
Tingyu Tao

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Interpolant of truncated multiple zeta functions
Kentaro Ihara, Yayoi Nakamura, Shuji Yamamoto

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Asymptotic geometry of non-abelian Hodge theory and Riemann-Hilbert correspondence, rank three $\widetilde{E}_6$ case
Miklos Eper, Szilard Szabo

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Complete corrected formula for generating functions of the hypergeometric distribution
Ken Yamamoto

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Ignacio Bono Parisi, Inés Pacharoni, Ignacio Zurrián

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Comparative Analyses of the Type D ASEP: Stochastic Fusion and Crystal Bases
Erik Brodsky, Eva Engel, Connor Panish, Lillian Stolberg

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On an upper bound for central binomial coefficients and Catalan numbers
Jean-Christophe Pain

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Integrability of the multi-species ASEP with long-range jumps on $\mathbb{Z}$
Eunghyun Lee

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Mengmeng Dou, Jiashu Zhang

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Dandan Chen, Siyu Yin

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Garth Warner

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An analogue of a formula of Popov
Pedro Ribeiro

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Himadri Shekhar Chakraborty, Nur Hamid, Tsuyoshi Miezaki, Manabu Oura

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On Proving Ramanujan's Inequality using a Sharper Bound for the Prime Counting Function $\pi(x)$
Subham De

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Series expansions by generalized Bessel functions for functions related to the lattice point problems for the p-circle
Masaya Kitajima

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The Green's function for an acoustic half-space problem with impedance boundary conditions Part I: Representation formula
C. Lin, J. M. Melenk, S. Sauter

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The Green's function for an acoustic, half-space impedance problem Part II: Analysis of the slowly varying and the plane wave component
C. Lin, J. M. Melenk, S. Sauter

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Zeros of L-functions and large partial sums of Dirichlet coefficients
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Shifted second moment of the Riemann zeta function and a Fourier type kernel
Parikshit Dutta, Debashis Ghoshal, Krishnan Rajkumar

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On the irregular Riemann-Hilbert correspondence
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Convergence Rates of Sums of Squares Hierarchies for Polynomial Optimization
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Edge modes of topologically ordered systems as emergent integrable flows: Robustness of algebraic structures in nonlinear quantum fluid dynamics
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Functional Equations and Pole Structure of the Bartholdi Zeta Function
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Olga Balkanova

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Soohyun Park

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Supercongruences arising from Ramanujan-Sato Series
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Generating Functions of Generalized Simplicial Polytopic Numbers and (s,t)-Derivatives of Partial Theta Function
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Xiao-Jie Zhu

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Hitoshi Konno, Kohei Motegi

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Maciej Grześkowiak, Jerzy Kaczorowski, Łukasz Pańkowski, Maciej Radziejewski

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Hyperderivatives of the deformation series associated with arithmetic gamma values and characteristic p multiple zeta values
Ryotaro Harada, Daichi Matsuzuki

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Dušan Popov

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Dan Betea, Anton Nazarov, Pavel Nikitin, Travis Scrimshaw

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On parametric 0-Gevrey asymptotic expansions in two levels for some linear partial q-difference-differential equations
Alberto Lastra, Stephane Malek

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An extended Cauchy integral
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João Marcos do Ó, Guozhen Lu, Raoní Ponciano

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Expression of Farhi's integral in terms of known mathematical constants
Jean-Christophe Pain

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Finite biorthogonal polynomials suggested by the finite orthogonal polynomials $M_n^{(p,q)}(x)$
Esra Güldoğan Lekesiz

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Chebyshev approximation of $x^m(-\log x)^l$ in the interval $0 \le x \le 1$
Richard J. Mathar

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The linear independence of 1, $\zeta(2)$, and $L(2, \chi_{-3})$
Frank Calegari, Vesselin Dimitrov, Yunqing Tang

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Mittag-Leffler type theorems for Helson zeta-functions
Johan Andersson

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Asymptotics of dynamic ASEP using duality
Jeffrey Kuan, Zhengye Zhou

http://arxiv.org/abs/2408.15975
Mixed Tate motives and cyclotomic multiple zeta values of level 2^n or 3^n
Minoru Hirose

http://arxiv.org/abs/2408.16148
Pan-Xu conjecture and reduction formulas for polylogarithms
Marian Genčev

Topic #10 ——— OP - SF Net 31.5 ——— September 15, 2024

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 31.6 should be sent by November 1, 2024.

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 31.5, the SIAG/OPSF elections have not occurred.

Topic #11 ——— OP – SF Net 31.5 ——— September 15, 2024

From: OP–SF Net Editors
Subject: Thought of the Month by **Rouché** and **De Comberousse**

In French:
“Pour appliquer une science il ne suffit pas d’en connaître quelques parties; il faut être familiarisé avec toutes ses méthodes, être maître de l’ensemble.”

English translation:
“To apply a science it is not enough to know some parts of it; one must be familiar with all its methods, be master of the whole.”

Eugène Rouché (1832–1910) and **Charles Jules Félix de Comberousse** (1826–1897) from the Preface of the book *Traité de Géométrie Élémentaire*, *Première Partie*, by Rouché, E. and de Comberousse, C. J. F., Gauthier-Villars, Paris, 1894. Rouché was the mathematician who first expressed orthogonal polynomials under the form of a determinant.

Contributed by **Claude Brezinski**.

Comment by **Paul A. Martin** on September 11, 2024: The Thought of the Month must be discouraging to young researchers!