

OP-SF NET – Volume 33, Number 4 – July 15, 2026

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.

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Calendar of Events:

August 17–21, 2026

18th International Symposium on Orthogonal Polynomials, Special Functions and Applications
Muromachi Campus, Doshisha University, Kyoto, Japan
<https://opsfa18.com/>

September 2–5, 2026

Approximation Theory and Special Functions (ATSF 2026 – 9th Series)
TOBB University of Economics and Technology, Ankara, Türkiye
<https://atsf2026.etu.edu.tr/>

Topic #1 ——— OP – SF Net 33.4 ——— July 15, 2026

From: Howard S. Cohl (howard.cohl@nist.gov), Kerstin Jordaan (jordakh@unisa.ac.za),
and Tom Trogdon (trogdon@uw.edu)
Subject: Announcement: OPSF Added to the SIAM Journal on Mathematical Analysis Editorial Policy

Orthogonal Polynomials and Special Functions Added to the Editorial Policy of the SIAM Journal on Mathematical Analysis.

We are pleased to report an encouraging development for the Orthogonal Polynomials and Special Functions (OPSF) community. Following discussions between SIAG/OPSF leadership and SIAM Publications, Orthogonal Polynomials and Special Functions (OPSF) has been explicitly added to the editorial policy of the *SIAM Journal on Mathematical Analysis* (SIMA); see

<https://epubs.siam.org/journal/sima/editorial-policy>.

This change is an important step toward recognizing OPSF as a core area of mathematical analysis and sends a positive signal that high-quality research in the field is welcome at SIMA.

We thank Kivmars Bowling (SIAM Publications Director), Pierre-Emmanuel Jabin (Editor-in-Chief of SIMA), and Tamara Kolda (SIAM Vice President for Publications) for their thoughtful consideration of this matter and their engagement with the OPSF community. We also note with appreciation that Professor Jabin has indicated that he will keep recommendations for additional Associate Editors with expertise in OPSF in mind as future editorial appointments are made.

At the same time, it is clear that additional progress is needed. Although OPSF is now explicitly included in the editorial policy, the journal's scope continues to emphasize applied mathematical analysis, and questions remain regarding the treatment of papers whose primary contributions are theoretical. Many of the most influential advances in orthogonal polynomials and special functions have arisen from deep theoretical developments that only later found important applications. We therefore hope that the role of OPSF within SIMA will continue to broaden and that the journal will welcome both fundamental and application-driven contributions.

An important next step is for members of the OPSF community to submit outstanding papers to SIMA. Doing so will help demonstrate the vitality of the field, provide a clearer picture of how OPSF manuscripts are handled in practice, and help identify any remaining barriers to publication.

We welcome comments from the community on this development. Continued dialogue with SIAM Publications and the SIMA editorial leadership, together with increased submissions from the OPSF community, will help ensure that orthogonal polynomials and special functions receive the visibility and representation they deserve within one of SIAM's flagship journals.

Topic #2 ——— OP – SF Net 33.4 ——— July 15, 2026

From: Nico Temme (nic@temme.net)

Subject: Announcement: New book by **Piet Van Mieghem**: The Mittag-Leffler and Gamma Function

Title: [The Mittag-Leffler and Gamma Function](#)

Author: Piet Van Mieghem, Delft University of Technology

Date of Publication: 25 June 2026, 326 pages

Publisher: Oxford University Press, Oxford Mathematical Monographs

ISBN: 9780198993377

The first part of the book (pages 1–167) deals with the generalized Mittag-Leffler function; the second part (pages 169–318) is devoted to the gamma function.

Part I: The Mittag-Leffler function

1. Introduction
2. Deductions from the Taylor series
3. Integrals containing the Mittag-Leffler function
4. Integrals representations for the Mittag-Leffler function
5. Probability theory and Mittag-Leffler function
6. Estimates and bounds
7. Miscellanea
8. Epilogue

Part II: The Gamma function

1. Introduction
2. Defining the Gamma function
3. The Euler–Gauss product
4. The Digamma function
5. Binet’s function
6. Asymptotic behavior of the Gamma function
7. The entire function $1/\Gamma(z)$
8. The entire incomplete Gamma function
9. The Beta function

Topic #3 ——— OP – SF Net 33.4 ——— July 15, 2026

From: Davorka Jandrlić (djandrlic@mas.bg.ac.rs) and Aleksandar Pejčev

Subject: Report: Mathematics, Numerics and Applications by **Jandrlić** and **Pejčev**

Conference Report: Mathematics, Numerics and Applications (MNA 2026)

Dedicated to Professor Miodrag Spalević on the occasion of his 65th birthday

Budva, Montenegro, May 26–29, 2026

The international conference Mathematics, Numerics and Applications ([MNA 2026](#)) was held from May 26 to 29, 2026, in Budva, Montenegro. The meeting was dedicated to Professor [Miodrag Spalević](#) on the occasion of his 65th birthday, in recognition of his sustained and influential contributions to numerical analysis—most notably to Gauss-type quadrature rules, the error estimation of quadrature formulae, and averaged and optimal averaged Gauss rules. Organized by the Faculty of Mechanical Engineering, University of Belgrade, the conference brought together 39 participants from 9 countries, and its scientific programme comprised three plenary lectures, four keynote lectures, and twenty-five contributed talks. The dedication was far more than ceremonial: a substantial number of presentations, from the plenaries to the contributed talks, were explicitly devoted to Professor Spalević's scientific achievements, lending the meeting a distinctive and collegial character.

The conference opened with a tribute to the honoree. A. Pejčev gave a warm survey of Professor Spalević's life and scientific career, after which Professor Spalević delivered his lecture On Some Parts of My Research Work, reflecting on his path through the theory of numerical quadrature and on his many collaborations across Europe and the United States. Academician Gradimir V. Milovanović, who chairs the Scientific Committee, was regrettably unable to attend for health reasons and therefore did not present; the organizers are deeply grateful for his guidance in shaping the programme, and the entire community joins in wishing him a full and speedy recovery.



Figure 1: Participants of MNA 2026, Budva, Montenegro, May 2026.

The three plenary lectures formed the scientific backbone of the meeting, addressing topics at the heart

of orthogonal polynomials and quadrature theory. Lothar Reichel (Kent State University), founder and editor-in-chief of *Electronic Transactions on Numerical Analysis (ETNA)*, opened with the greeting “Happy 65th Birthday, Miodrag!” and presented a wide-ranging survey, co-authored with sixteen colleagues, on the computation and properties of averaged and optimal averaged Gauss rules, the estimation of the quadrature error, and applications to the evaluation of matrix functions via the Lanczos method. Francisco Marcellán (Universidad Carlos III de Madrid) gave a comprehensive sixty-eight-slide survey of Sobolev orthogonal polynomials and coherent pairs of measures, encompassing the Laguerre–Sobolev, Freud–Sobolev, and symmetric coherent families and touching on both computational aspects and open problems. Sotirios Notaris (National and Kapodistrian University of Athens), dedicating his lecture to Professor Spalević, presented rigorous existence, convergence, and error results for product integration rules employing Chebyshev abscissae for each of the four Chebyshev weight functions.

Four keynote lectures broadened the scientific scope of the meeting. Dušan Đukić discussed the asymptotics of orthogonal polynomials for the Abel weight; A. Pejčev presented error estimates for Gaussian quadrature associated with modified Jacobi weights, in joint work with M. Spalević, D. Jandrlić, S. Spalević, R. Orive, and Lj. Mihić; Maria Carmela De Bonis introduced a global numerical method for the fractional relaxation–oscillation equation; and Ahmet Ocak Akdemir derived inequalities by means of fractional integral operators.

The contributed programme was centered on quadrature and orthogonal polynomials, with talks on Gauss–Turán quadrature, Kronrod extensions, the internality of generalized averaged Gauss rules, generalized averaged rules for trigonometric polynomials, orthogonality on the semicircle, multiple orthogonal trigonometric polynomials, and electrostatic partners as a new approach to the zeros of orthogonal polynomials. Further contributions addressed Hardy-type inequalities, generalizations of Hermite–Hadamard inequalities, Bernstein basis functions, r -parametric Hermite polynomials, numerical methods for partial differential equations, matrix analysis, and optimization.

A particularly warm note of gratitude is due to the three plenary speakers—Professors Reichel, Marcellán, and Notaris—who honoured both the conference and its honoree by attending every session across all four days. They followed the plenary, keynote, and contributed talks with genuine interest, asked thought-provoking questions, and engaged speakers at every stage of their careers, creating a truly exceptional scientific atmosphere that the participants, and especially the younger researchers, will long remember.

A Book of Abstracts (ISBN 978–86–6060–247–5) was published by the Faculty of Mechanical Engineering, University of Belgrade. Selected papers will appear in a special issue of [Electronic Transactions on Numerical Analysis \(ETNA\)](#), dedicated to Professor Spalević and edited by Luisa Fermo, Francisco Marcellán, Gradimir V. Milovanović, Miroslav Pranić, and Lothar Reichel. The conference was supported by the Faculty of Mechanical Engineering, and the organizers thank Dean V. Popović and all participants for a scientifically stimulating and personally warm meeting that paid fitting tribute to Professor Miodrag Spalević.

Davorka Jandrlić and Aleksandar Pejčev
Faculty of Mechanical Engineering, University of Belgrade, Serbia

Topic #4 ——— OP – SF Net 33.4 ——— July 15, 2026

From: Clemente Cesarano (clemente.cesarano@uninettunouniversity.net)
Subject: Report: Alps Approximation School and Meeting by **Clemente Cesarano**

The Alps Approximation School and Meeting ([AASM 2026](#)) was held in Bardonecchia (Turin), Italy, from

June 1 to 5, 2026, organized by Clemente Cesarano of Unitettuno University (Rome), Roberto Cavoretto, Alessandra De Rossi, and Incoronata Notarangelo of the University of Turin and Alvis Sommariva of the University of Padua. This international event combined a Summer School and a scientific conference dedicated to approximation theory, bringing together mathematicians, researchers, and students interested in both fundamental advances and applied perspectives. The program explored theoretical frameworks, computational methods, and applications of approximation techniques to problems arising in various fields of mathematics and related sciences. The scientific program consisted of two courses, two seminars, four working groups, and a poster session.



Figure 2: Group Photo for AASM 2026.

Lecturers

1. Teresa Pérez

Department of Mathematics, University of Granada, Spain

Orthogonal Polynomials in Several Variables: From Hermite to Zernike and Beyond. Applications in Optics.

2. Sheehan Olver

Department of Mathematics, Imperial College London, United Kingdom

Representation Theory Meets Approximation Theory

Seminars

1. **Roman Dmytryshyn**

Vasyl Stefanyk Carpathian National University, Ukraine

Representations of Analytical Functions by Branched Continued Fractions

2. **Woula Themistoclakis**

IAC, National Research Council of Italy (CNR), Italy

On Polynomial Wavelets via de la Vallée Poussin Interpolation and Their Applications

Working Groups

1. **Luisa Fermo** (University of Cagliari, Italy) and **Giuseppe Rodriguez** (University of Cagliari, Italy)

Numerical Integration and Applications to Integral Equations

2. **Francisco Marcellán** (Universidad Carlos III de Madrid, Spain) and **Nicola Mastronardi** (IAC-CNR, Italy)

Sobolev Orthogonal Polynomials: Theoretical and Computational Aspects

3. **Roberto Cavoretto** (University of Turin, Italy) and **Amir Noorizadegan** (Hong Kong Baptist University)

Meshless Methods and Scientific Machine Learning

4. **Clemente Cesarano** (Università Telematica Internazionale Uninettuno, Italy)

Operator Theory in Describing and Analyzing Special Polynomials

Topic #5 ——— OP – SF Net 33.4 ——— July 15, 2026

From: Erik Koelink (e.koelink@math.ru.nl) and Maarten van Puijsssen (m.vanpuijsssen@math.ru.nl)

Subject: Report: Q-SPHERE 2026 by **Erik Koelink** and **Maarten van Puijsssen**

Quantum Symmetric Pairs, Hecke Algebras, and Representations: Exploring Spherical Functions (Q-SPHERE 2026), June 8–12, 2026, Radboud University, Nijmegen, the Netherlands

Q-SPHERE is a focused workshop bringing together researchers working at the intersection of representation theory, symmetric pairs, quantum symmetric pairs, and Hecke algebras. A central theme is the rich theory of spherical functions, both classical and quantum, and their deep connections with special functions, orthogonal polynomials, and their vector- and matrix-valued generalizations with applications in mathematical physics. It fits the general philosophy that symmetry in its many forms (Lie groups, quantum groups, Weyl groups, Hecke algebras, etc) is very useful in studying amongst other special functions and orthogonal polynomials. The talks were very interesting and led to many discussions among the participants. Many young researchers were given the opportunity to present their results.

For the purpose of the Newsletter, we focus on the talks involving special functions. Stokman's lecture connected the fundamental Ismail–Rahman paper on the associated Askey–Wilson polynomials to double affine Hecke algebras related to dihedral groups. In the lectures by Mazzocco and Koornwinder, the relation between non-symmetric Askey–Wilson polynomials and its symmetries via double affine Hecke algebras was discussed. In both van Horssen's and Opdam's lecture, the shift operators for multivariable special functions were discussed in a complementary way. In Rösler's talk, multivariable Dunkl–Bessel functions and their limits as the rank tends to infinity were discussed. Langen discussed new bounds

on the Dunkl kernel. There were lectures on how to obtain matrix spherical functions, in particular Schlösser discussed a general framework related to quantum groups. Shimeno explained how to obtain matrix spherical functions for certain types of Lie groups and representations in connection to Opdam non-symmetric hypergeometric functions. In the lecture of Pevzner, 2-variable Jacobi polynomials and some generalizations occurred as symmetry breaking operators (Rankin-Cohen brackets) for decomposing Lie group representations, and in Labriet's lecture 2-variable Jacobi polynomials and the Jacobi algebra were explained.

There were several lectures on the relation of special functions to mathematical physics, also involving special functions. In particular, in Lamers's talk the many-body quantum spin version of the Macdonald-Ruijsenaars system was discussed, and in Isachenkov's lecture the relation with spin-graph functions for the Lorentz groups played an important role.

The workshop was very positively evaluated by the participants since it connected various strands and discussed new developments. This led to many topics to be discussed during the coffee and lunch breaks and also outside of the workshop.

Erik Koelink and Maarten van Puijsschen

Topic #6 ——— OP – SF Net 33.4 ——— July 15, 2026

From: Manuel Domínguez de la Iglesia (manuel.dominguezi@uah.es)

Subject: Report: Summer School OPSF-S11 by Manuel Domínguez de la Iglesia

**“Orthogonal Polynomials, Special Functions and their Applications” Summer School OPSF-S11,
June 15–19, 2026, Universidad de Alcalá, Alcalá de Henares, Spain**

The Summer School [OPSF-S11](#) 2026 was held from June 15 to June 19, 2026, at the Universidad de Alcalá in Alcalá de Henares, Spain. The school was organized by Amílcar Branquinho (Universidade de Coimbra), Manuel Domínguez de la Iglesia (Universidad de Alcalá), Ana Foulquié Moreno (Universidade de Aveiro), Edmundo Huertas Cejudo (Universidad de Alcalá), Alberto Lastra Sedano (Universidad de Alcalá), and Manuel Mañas Baena (Universidad Complutense de Madrid).

The school had a remarkable level of participation, bringing together 47 participants from institutions in 20 different countries across four continents: Africa, the Americas, Asia, and Europe. The Organizing Committee was able to award 16 grants covering the registration fee and accommodation, as well as breakfast and lunch throughout the five days of the school. This broad international representation greatly enriched both the scientific scope and the collaborative atmosphere of the event.

The scientific programme consisted of five intensive courses, each comprising five hours of lectures. Each course was divided into four sessions, including two 90-minute lectures and two 60-minute lectures, distributed throughout the week. The first course was delivered by Professor Marco Bertola (Concordia University) and was devoted to “Asymptotic methods for Orthogonal Polynomials and more general Padé approximants”. The second course was given by Professor Annie Cuyt (Universiteit Antwerpen and University of Stirling), who lectured on “Connections between Orthogonal Polynomials, Sparse Interpolation, Exponential Analysis, Padé Approximation and Gaussian Integration”. The third course, entitled “Multivariate orthogonal polynomials and applications”, was delivered by Professor Lidia Fernández (Universidad de Granada). The fourth course was given by Professor Arno Kuijlaars (KU Leuven) under the title “From Jacobi polynomials to random tilings”. Finally, Professor Luis Velázquez (Universidad de Zaragoza) delivered the course “Diagrammatic and harmonic analysis methods for orthogonal polynomials”. We are also pleased to announce that the lecture material from the five courses is expected to be published in



Figure 3: Group Photo for Summer School OPSF–S11 2026.

the RSME Springer Series.

In addition to the main lecture courses, the programme included seven short 10-minute communications, delivered by Amílcar Branquinho (Universidade de Coimbra), Lucas Bourgoïn (IRMA/Université de Strasbourg), Cristina Rodríguez Perales (Universidad de Almería), Bart Rosenzweig (The Ohio State University), Hassan Temmih (Abdelmalek Essaâdi University), Marcus Vaktnäs (Uppsala University), and Adrián Vidal Delgado (Universidad de Talca). The school also featured a poster session with contributions by Daniel Meikle (University of Edinburgh), Andrés Quintana Martín (Universidad de Granada), and Viviane Brandão Silva Leite (Federal University of Campina Grande).

The academic programme was complemented by a cultural visit to the historic Universidad de Alcalá, a UNESCO World Heritage Site. This activity offered participants the opportunity to learn about the rich cultural and institutional heritage of the host university and the city of Alcalá de Henares.

Throughout the week, the school provided a stimulating atmosphere for scientific exchange, informal discussion, and new academic connections. By bringing together senior researchers, early-career scholars, and graduate students, it helped strengthen the international community working on orthogonal polynomials, special functions, and their applications.

From: Wen-shin Lee (wen-shin.lee@stir.ac.uk)

Subject: Report: OPERA 2026 Conference by Wen-shin Lee

Orthogonal Polynomials, Exponential Analysis, Rational Approximation, with Applications (OPERA 2026), June 22–26, 2026, Stirling, Scotland



Figure 4: Group Photo for OPERA 2026.

The [OPERA 2026](#) conference (Orthogonal Polynomials, Exponential Analysis, Rational Approximation, with Applications) was held at the University of Stirling, Scotland, from 22 to 26 June 2026. The scientific programme also featured contributions on related areas including integration, multiresolution, subdivision, refinability and structured matrices. With participants from the UK, Europe, North America, Asia and South Africa, the conference provided a vibrant forum for exchanging ideas and establishing new collaborations.

The conference featured five plenary lectures delivered by Bernhard Beckermann (Lille, France), Stefano De Marchi (Padua, Italy), Stefan Güttel (Manchester, UK), Miguel Piñar (Granada, Spain) and Gerlind Plonka-Hoch (Göttingen, Germany). Their talks highlighted recent advances in multivariate orthogonal polynomials, exponential analysis, radial basis functions, rational approximation, and related computational methods. In addition to the plenary lectures, the programme included a wide range of conference talks and poster presentations showcasing recent developments in the field.

OPERA 2026 also served as the closing event of [EXPOWER](#) (EXPOnential analysis emPOWERing innovation), a Horizon 2020 Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE) project involving more than 20 universities, research institutes and industrial partners across 11 countries. EXPOWER

supported international collaboration and staff exchanges in these mathematical areas, leading to the development of new computational methods for signal processing and inverse problems, with applications including antenna design, medical imaging, radio astronomy, remote sensing and financial data analysis.

During the conference dinner on Wednesday, 24 June, participants celebrated the 70th birthday of Professor Annie Cuyt, Honorary Professor at the University of Stirling and Emeritus Professor at the University of Antwerp. Professor Cuyt is the project lead of EXPOWER, a member of the Royal Flemish Academy of Belgium for Science and the Arts and has been awarded a Belgian knighthood in recognition of her outstanding contributions to mathematics.

OPERA 2026 was supported by the European Union through the EXPOWER project, together with the London Mathematical Society, the Edinburgh Mathematical Society, the Heilbronn Institute for Mathematical Research and Maplesoft. Further details about the conference are available at <https://opera2026.uk>.

Topic #8 ——— OP – SF Net 33.4 ——— July 15, 2026

From: Teresa E. Pérez (tperez@ugr.es)

Subject: Report: FoCM Workshop on Special Functions and Orthogonal Polynomials by **Teresa Pérez**

The Foundations of Computational Mathematics 2026 (**FoCM 2026**) conference is currently taking place in Vienna, Austria.

One of the plenary speakers at the FoCM Conference was Arno Kuijlaars from KU Leuven, who presented a talk on Random tilings and matrix-valued orthogonal polynomials.



Figure 5: Group photo of FOCM 2026 Workshop on Special Functions and Orthogonal Polynomials.

The first part, held from July 9th to 11th, featured the [Workshop on Special Functions and Orthogonal Polynomials](#), organized by Daan Huybrechts of KU Leuven, Erik Koelink of Radboud University, and Teresa Pérez of the University of Granada.

The workshop had two Semi-Plenary speakers, Luc Vinet from University of Montreal, who spoke about Leonard trios and biorthogonal rational functions, and Pablo Román, from National University of Córdoba, with the talk entitled Matrix-valued orthogonal polynomials and differential operators.

The workshop featured 30-minute talks by Rabia Aktas Kamaran (Ankara University), Mirta Castro Smirnova (Universidad de Sevilla), Dan Dai (City University of Hong Kong), Benjamin Eichinger (Lancaster University), Wolter Groenevelt (Delft University of Technology), Astrid Herremans (KU Leuven), Kerstin Jor-

daan (University of South Africa), Makoto Katori (Chuo University), Ana Loureiro (University of Kent), Adri Olde Daalhuis (The University of Edinburgh), Sheehan Olver (Imperial College London), Ioannis Papadopoulos (University of Oxford), Chiara Paulsen (University of Wisconsin–Madison), Veronika Pillwein (JKU Linz), Cristina Rodríguez Perales (Universidad de Almería), Michael Schlosser (University of Vienna), Guilherme Silva (Universidade de São Paulo), Niel Van Buggenhout (Universidad Carlos III de Madrid), Max van Horssen (KU Leuven), and Juan Antonio Villegas (Universidad de Granada).

In addition, poster presentations were given by Benedikt Buchecker (KU Leuven), Svetlana Grigoryan (National Polytechnic University of Armenia), Lennart Hübner (KU Leuven), Dmitrii Karp (Holon Institute of Technology), Juan José Moreno–Balcázar (University of Almería), Teresa Pérez (University of Granada), and Miguel Pinar (University of Granada).

The Plenary Conference, the sessions and the poster presentations offered a multi–faceted overview of contemporary research in orthogonal polynomials and special functions. Several talks focused on the analysis of orthogonal polynomials themselves, including asymptotic analysis of their behavior for large degrees. A second group of topics addressed generalizations of orthogonal polynomials, including polynomials of several variables, matrix–valued orthogonal polynomials, and polynomials defined on curves and surfaces. Finally, orthogonal polynomials as tools in applications were featured in talks on numerical simulations and other computational settings.

The sessions were highly engaging, with participants actively contributing through questions and comments, fostering a lively exchange of knowledge and ideas.

Topic #9 ——— OP – SF Net 33.4 ——— July 15, 2026

From: Galina Filipuk (filipuk@mimuw.edu.pl) and Giorgio Gubbiotti (giorgio.gubbiotti@unimi.it)

Subject: Report: ICDEA 2026 Hybrid Session on Discrete Integrable Systems and SF by **Galina Filipuk**

On the 13th and 15th of July 2026 there was a special (hybrid) session entitled Discrete integrable systems and special functions organized by Galina Filipuk (University of Warsaw, Poland) and Giorgio Gubbiotti (University of Milan, Italy) in the framework of The 31st International Conference on Difference Equations and Applications ([ICDEA 2026](#)) which is currently taking place from 13 to 17 July, 2026 in Milan, Italy.

Discrete integrable systems bridge the worlds of difference equations, discrete geometry, and advanced special function theory, forming an important area of modern research. These systems exhibit rich structures (e.g., hidden symmetries) which are important in both mathematics and physics. In particular, they drive the discovery of new discrete analogs of classical functions and illuminate subtle properties of well–known special functions, including orthogonal polynomials, hypergeometric functions, and their q –extensions.

This hybrid session aimed to showcase recent advances for integrable difference systems and special functions, bringing together leading researchers and emerging scholars. The talks emphasized interactions between theory, applications and computational approaches. Through the exploration of topics such as special functions, discrete Painlevé systems, discrete continuum limits, and symmetries, participants gained a comprehensive view of current challenges and open problems in the field. Overall, the goal was to advance our understanding of discrete integrability and expand the knowledge of special functions in new directions.

The talks and speakers were as follows:

Monday:

- Generalized Krawtchouk polynomials and Painlevé equation via iterated regularization – Cristina Rodríguez–Perales, Universidad de Almería.

- Product formulas for basic hypergeometric series by evaluations of Askey–Wilson polynomials – Howard Cohl, National Institute of Standards and Technology [Gaithersburg].
- On the Backlund Transformations for the Second Painlevé Equation – Galina Filipuk, University of Warsaw.
- Second–order difference equation for quasi–orthogonal polynomials: Algorithm and symbolic program – Juan F. Mañas–Mañas, University of Almeria.
- Discretisation of a symmetry algebra: the Calogero–Moser model case – Giorgio Gubbiotti, Dipartimento de Matematica [Milano].

Wednesday:

- Global structure of q -difference equations related to the Painlevé equations – Yousuke Ohya, Tokushima University Library.
- A study of the q -Garnier system: Lax formulation and q -hypergeometric solution – Takao Suzuki, Department of Mathematics, Kindai University.
- Towards a formulation of the singular pattern approach for degree growth in higher–dimensional birational systems – Tomoyuki Takenawa, Tokyo University of Marine Science and Technology.
- Ramanujan’s ${}_1\psi_1$ -Summation Formula and contour–integral representation of the Jackson integral – Changgui Zhang, University of Lille.

Topic #10 ——— OP – SF Net 33.4 ——— July 15, 2026

From: Atul Dixit (adixit@iitgn.ac.in)

Subject: Article Reproduction: The Genius of Koshliakov and His Indomitable Spirit by **Atul Dixit**

[This is a reproduction of the article by Atul Dixit entitled “The Genius of Koshliakov and His Indomitable Spirit”, December 22, 2025, InSight, The IISER Kolkata Science Magazine, 7, February 2026.]

From a Soviet labor camp, Nikolai Koshliakov developed a striking generalization of the Riemann zeta function under conditions that defy imagination. This article traces the origins of his work on transcendental functions arising from a generalized Riemann equation. Along the way, it reveals how profound mathematics can emerge even in the most hostile environments.

In memory of Nikolai Sergeevich Koshliakov

Introduction

The humankind has regularly witnessed the birth of influential personalities who have time and again guided people through difficult situations and have raised their spirits. Adversities or ordeals could not crush them, and instead, they emerged victorious through their heroic deeds. One such role model that we will see in this article is the Russian mathematician Nikolai Sergeevich Koshliakov¹. Koshliakov was born on 11th July 1891 in St. Petersburg, Russia. After finishing his gymnasium (high school and college), Koshliakov entered the Department of Physics and Mathematics at St. Petersburg University, graduating in 1914 with a diploma securing a first class. Before being accepted at St. Petersburg, Koshliakov had mastered differential and integral calculus on his own [1] (see also [10]). At the university, he was taught by excellent mathematicians such as Markov, Steklov, Uspenskii etc. He became interested in analytic number theory, heavily influenced by the work of G. F. Voronoï. After graduation, he remained at St. Petersburg for his Masters. Throughout his life, Koshliakov held several eminent positions at various

¹His last name is spelled in several different ways, the second most common being *Koshlyakov*.

universities. He was an excellent teacher, his lectures being precise and comprehensible. His textbook on differential equations [6] became greatly popular among students, the outgrowth of which is [9].

Koshliakov was a researcher par excellence who mainly worked in analytic number theory and differential equations. He published more than 65 papers ranging from summation formulas to problems in applied mathematics. His slick proof of the Voronoï summation formula [4] is, according to the present author, the shortest proof known so far and full of ingenuity!

The subject of this note is concerned with one manuscript written in Russian by Koshliakov [7], whose title translates to ‘A study of a class of transcendental functions defined by the generalized Riemann equation’. But before we delve into it, it is important to understand the political situation in Soviet Union and the conditions in which Koshliakov wrote it.

Political situation in the Soviet Union during World War II, Koshliakov’s arrest, and mathematics from jail

NKVD was the Soviet Union’s secret police organization from 1934 to 1946. During the World War II, Axis powers undertook the “Siege of Leningrad”, a military blockade, from 1941 to 1944. In [1], the authors write:

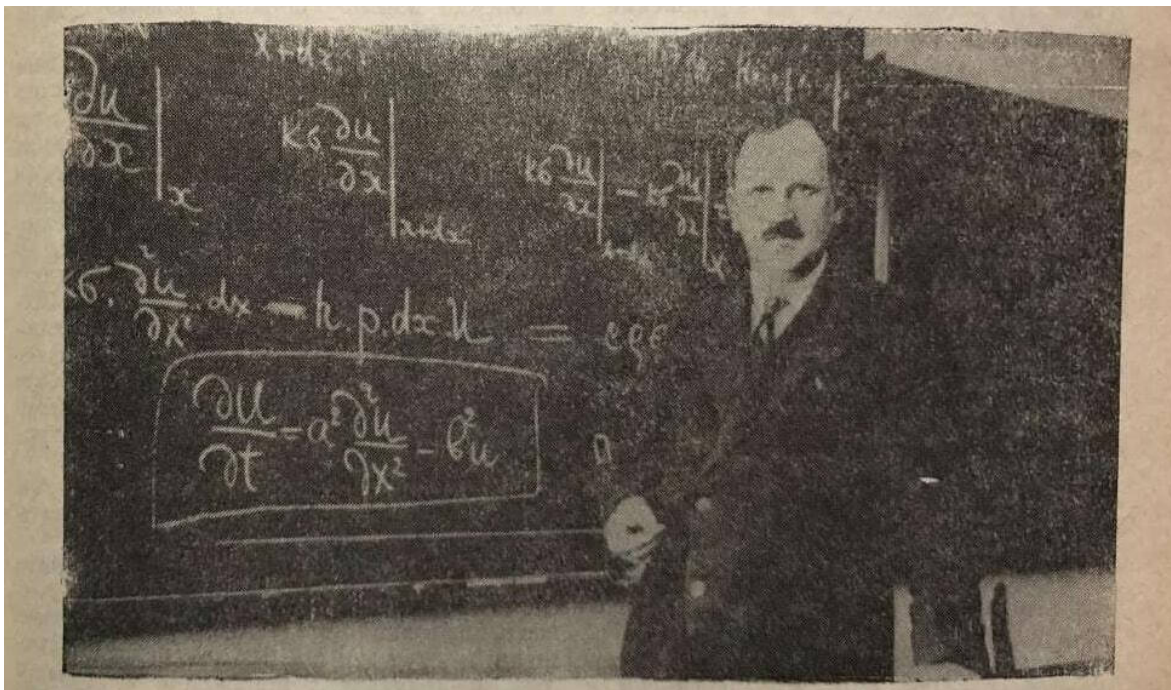


Figure 6: Nikolai Sergeevich Koshliakov (Picture courtesy: V. N. Koshlyakov, O. A. Laidyzhenskaya and D. R. Merkin and M. M. Smirnov, Vestnik Leningrad Univ. Mat. Mekh. Astronom. (1991) No. 4, 81–83.)

The repressions of the thirties which affected scholars in Leningrad continued even after the outbreak of the Second World War. In the winter of 1942 at the height of the blockade of Leningrad, Koshlyakov along with a group ... was arrested on fabricated ... dossiers and condemned to 10 years of correctional hard labour. After the verdict he was exiled to one of the camps in the Urals. ... On the grounds of complete exhaustion and complicated pellagra, Koshlyakov was classified in the camp as an invalid and was not sent to do any of the usual jobs. ... very serious shortage of paper. He was forced to carry out calculations on a piece of plywood, periodically scraping off what he had written with a piece of glass. Nevertheless, between 1943 and 1944 Koshlyakov wrote two long memoirs *Issledovanie nekotorykh*

voprosov analyticheskoi teorii rational'nogo i kvadratichnogo polya (*A study of some questions in the analytic theory of rational and quadratic fields*)² and Issledovanie odnogo klassa transtsendentnykh funktsii, opredelyaemykh obobshchennym yravneniem Rimana (*A study of a class of transcendental functions defined by the generalized Riemann equation*).

Further details are given in [11, p. 211–213], where the author says that the main purpose of the NKVD was to obtain signed “confessions”³ from the accused as proofs of their guilt (of supporting the Axis powers). Koshliakov wasn’t the only one. In fact, he was one among 13 scientists and mathematicians who were considered as the accused. Lorentz [11, p. 212] says:

By April 1942, after seven hungry months, the accused were suffering from acute starvation; many of them had lost 1/3 of their normal weight and were close to death. It is humanly understandable that an offer of a bowl of soup was sufficient to force them to sign a “confession”, an ultimate proof of guilt. Forced to stand for hours was another form of torture. No wonder that Koshliakov signed: “I intended to establish relations with the German commandant... I would like to atone for my guilt, be it in a small measure, by participating in our working front.... In particular, would be very happy to complete my work on summation formulas which I have been conducting for 30 years...”.

It is not our intention to delve a lot into politics but rather to put forth before everyone (especially students), how, in the extreme predicament that Koshliakov was going through, he could maintain his scientific fervour and produce magnificent research!

My “discovery” of Koshliakov’s second manuscript written from jail: A personal story

The second manuscript which Koshliakov wrote from jail under his patronymic name N. S. Sergeev, namely [7], although published, can still be considered as “lost” since nobody (except for a passing reference to it in the thesis of A. G. Kisunko [3, p. 4]) studied its contents for 70 years! I had the good fortune of “discovering” it in 2010 while I was a fourth year PhD student in Mathematics at the University of Illinois at Urbana–Champaign. Since this episode might be interesting to some of you, let me take some liberty to explain how it unfolded. I happened to come across the article [1] written on the centenary of Koshliakov’s birth, where I first learned of his second manuscript [7]. The authors of [1] had discussed in it some of the contents of [7]. I was taken aback to see an integral involving the Riemann Ξ -function considered there which generalized an integral considered by Ramanujan in his published paper [12].

I was happy and anxious, at the same time, to see the manuscript [7], and decided to get hold of it, and also everything else that Koshliakov had published. This is because I, myself, was working on a generalization of that very same integral of Ramanujan, and so I wanted to make sure that I am not replicating what Koshliakov did years ago! The manuscript was available at the Center for Research Libraries (CRL) in Chicago. I asked the UIUC Math librarian Tim Cole if we could get it for a few days via inter-library loan. I was pleasantly surprised to find that the CRL had scanned the 150-page manuscript and had emailed it to me! To my solace, Koshliakov had not done anything I was working on. I found the manuscript to be very interesting though.

However, it wasn’t until ten more years that I decided to seriously study this manuscript along with my PhD student Rajat Gupta. It was then that we found out what a gem this manuscript is! We made two modest contributions to the theory [2].

Contents of the manuscript

To describe the main idea, let us first define the Riemann zeta function, one of the most important functions of mathematics. For $\text{Re}(s) > 1$, it is defined by the absolutely and uniformly convergent series

²It is believed that this manuscript was lost in transit from jail to Steklov Institute of Mathematics, however, Koshliakov resurrected it in the form of three papers [8] in 1954.

³This word in quotes, of course, means *fabricated confessions*.



Figure 7: Koshliakov graduated from the Faculty of Physics and Mathematics of the University of St. Petersburg in 1914.

$\zeta(s) := \sum_{n=1}^{\infty} n^{-s}$. It can be analytically continued to the entire complex plane except for a simple pole at $s = 1$. Koshliakov's theory stems from a problem in Physics on heat conduction. We refer the reader to [5] and [6, p. 488–489] for a description of this problem.

The equation $p \sin(\pi\lambda) + \lambda \cos(\pi\lambda) = 0$, where $p > 0$, forms the crux of Koshliakov's theory. It is the characteristic equation of the generalized heat equation encountered by Koshliakov in his problem on heat conduction. As $p \rightarrow \infty$, the positive roots λ_n of the characteristic equation are $\lambda_n = n$ (being the roots of the resulting equation $\sin(\pi\lambda) = 0$). Thus, in this special case, the series $\sum_{n=1}^{\infty} \lambda_n^{-s}$ is nothing but the Riemann zeta function $\zeta(s)$. Moreover, when $p \rightarrow 0$ and $\lambda \neq 0$, we get $\cos(\pi\lambda) = 0$, which implies that the positive roots are $\lambda_n = n - 1/2$. Thus, one can study the series

$$\sum_{n=1}^{\infty} \left(n - \frac{1}{2}\right)^{-s} = (2^s - 1)\zeta(s). \quad (1)$$

For any $p > 0$, one may then construct a general zeta function $\sum_{n=1}^{\infty} \lambda_n^{-s}$ for $\text{Re}(s) > 1$. In fact, Koshliakov considers a normalized version of this series, namely,

$$\zeta_p(s) := \sum_{j=1}^{\infty} \frac{p^2 + \lambda_j^2}{p(p + \frac{1}{\pi}) + \lambda_j^2} \cdot \frac{1}{\lambda_j^s}. \quad (2)$$

This is one of the two *Koshliakov zeta functions*. With this foundation, Koshliakov shows unmatched brilliance in developing the theory of these zeta functions and the functions associated to them. For details, the reader is referred to [7] and [2].

Concluding remarks

Koshliakov died of a brain haemorrhage on 23rd September 1958. While mortal remains put an end to a person's physical presence, the ideas he/she comes up with live forever. Koshliakov's legacy and his

indomitable spirit will continue to inspire everyone as long his mathematics is studied!

Acknowledgements

The author's research is funded by the Swarnajayanti Fellowship grant SB/SJF/2021-22/08 of ANRF (Government of India) as well as by the N Rama Rao Chair Professorship at IIT Gandhinagar. He sincerely thanks both for their support.



Figure 8: **Rajat Gupta** was then a PhD student under Atul Dixit when they studied Koshliakov's second manuscript in more detail and even managed to extend his theory.

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About the Author: Atul Dixit is a Professor of Mathematics at IIT Gandhinagar and holds the [N. Rama Rao Chair](#) position at the institute. Atul's research interests are in Analytic Number Theory, Special Functions, Theory of Partitions, q -series and Modular Forms. He also likes to work in the areas of mathematics developed by Srinivasa Ramanujan.

Topic #11 ——— OP – SF Net 33.4 ——— July 15, 2026

From: OP–SF Net Editors
Subject: Remembrances of **Kathy Driver** (1947–2026)

Remembrances of Kathy Driver (June 3, 1947 – June 13, 2026)

Below are some remembrances of Kathy Driver from her family, colleagues and collaborators:

Kathy's youngest daughter: **Penny Byrne**; University of Cape Town Dean's Desk; **Amanda Weltman**; **Doron Lubinsky**; **Walter Van Assche**; **Ed Saff**; **Andrei Martínez–Finkelshtein**; **Lance Littlejohn**; **Alan Sokal**; and **Claude Brezinski**. We also include several assorted photographs of Kathy.

If anyone else would like to contribute a remembrance of Kathy, please don't hesitate to submit it for the next Newsletter OP–SF NET 33.5, to be published on September 15, 2026.

* * *

A Eulogy for Kathleen Ann Driver

Penny Byrne, née Driver (penny.driver@gmail.com)
Edited for publication by Kerstin Jordaan

The following is an edited version of the eulogy delivered by Kathy's daughter, Penny Byrne, at her memorial service. While other contributions in this issue reflect on Kathy's mathematical work and influence, this remembrance offers a more personal portrait of her life, character and relationships. It also includes excerpts from Kathy's own writing, "42 Years of Life with Gordon", kindly shared by Paul Nevai.



Figure 9: Kathy Driver, 2006.

Kathy was born in Johannesburg in 1947, and it was clear from a young age that she possessed great intelligence and athletic ability. She could still recite the first chapter of Charles Dickens' *David Copperfield* after having to learn it as punishment in primary school. The nuns were shocked at how quickly she learned the pages, which was the first time she realised that not everyone possessed a photographic memory. Alongside her photographic memory, she was gifted at mathematics and had a deep love of classical music. Although she did not sing herself, she had perfect pitch and could immediately identify any note that was played. She was also a talented tennis player and represented South Africa as a junior national tennis champion.

She completed her schooling at the age of 16, having finished the first two grades in a single year. She attended the University of the Witwatersrand (Wits) for her undergraduate degree in Mathematics and was awarded the William Cullen Medal for the most distinguished graduate in the Faculty of Science in 1966 when she was only 19 years old. Her undergraduate studies had been paid

for by a no-strings-attached bursary from Anglo American plc, a global mining company. When she visited their offices after completing her degree, the man she met with told her she had made his job so much easier by winning all the prizes that he immediately offered to cover her honours degree (fourth year), also at Wits.

She then moved to San Francisco to attend Stanford University and obtained a master's degree when she was 24 years old. She returned to South Africa and started lecturing mathematics at Wits. She focused mostly on her students and her home life for many years. She was a phenomenal teacher and could somehow always turn a silly question into a great lesson. Her love of the subject was infectious and she never let any student feel embarrassed for asking a question. That's part of why old students would cross the street and run up to her, saying, "I'm sure you don't remember me"—spoiler: she usually did—"but you taught me second-year engineering mathematics and I only passed thanks to you."

When she was in her 40s, she attended an honours course on Approximation Theory taught by Doron Lubinsky. During a lecture, he once referred to her as his PhD student. She decided that this was a good idea and proceeded to pursue her PhD while working full time and raising her young children, graduating in 1991. Her example inspired many others and during her tenure as Head of the Department of Mathematics at Wits, the faculty called to ensure that the number of staff registering for PhD studies wasn't a mistake. Of course, it was not a mistake. By the time she left the Department of Mathematics, many more members of staff—most of them women—held doctorates in mathematics than when she had begun.

Kathy and her husband Gordon met while playing bridge when she was 24. He was a professional bridge player at the time. Although she had another boyfriend (who happened to be an American mathematician with whom she worked with at Wits), Gordon pursued her relentlessly and eventually won her hand. Kathy's parents were horrified that their incredible daughter was planning on marrying an English Jewish boy without any higher education who gambled for a living. Her parents came around as it was hard to

resist Gordon's charm, and they were married in a small garden wedding at Kathy's sister's house, catering the occasion with takeaway food from Kentucky Fried Chicken. Gordon forgot his speech, but Kathy gave one anyway, so it didn't matter. The next day they went to Swaziland on honeymoon with Gordon's parents and Gordon's father's golf clubs. Four adults and one set of golf clubs plus their luggage in one Volkswagen Beetle.

On a trip to Monaco, they made enough money to pay for the entire holiday when Gordon kept winning at the craps table for 30 minutes while Kathy was scooping the chips off the table to cash them in as fast as she could. They were a formidable team, playing tennis every Sunday for years with their friends, and while Gordon couldn't match Kathy's skill, his powerful volley from the net was extremely useful. They played bridge together for years and won many championships.

After her term as head of the department, Kathy was offered the position of Dean of Science at the University of Cape Town (UCT). She had not planned to accept it, since she would neither ask Gordon to move nor live apart from him and commute between Johannesburg and Cape Town. Kathy fondly recalled an evening when they were dining out with friends. Asked what he was doing over the weekend, Gordon announced that he was flying to Cape Town to buy a house because Kathy deserved to be Dean of Science and he would move with her. She always felt celebrated and supported by Gordon, and this was a wonderful example of his love and respect for her.

Penny moved to Cape Town a few years after her parents and was grateful finally to get to know them as an adult. She and Kathy would have hours-long conversations in Kathy's office, during which Penny learned a great deal about her mother's life. Having never written an essay longer than three pages, Penny was intimidated by the prospect of writing a thesis. Kathy spent many hours helping her, rewriting early attempts and teaching her how to use words to their fullest effect.

Kathy was the first woman to serve as Head of the Department of Mathematics at Wits and the first woman to serve as Dean of Science at UCT. She published 74 peer-reviewed research papers in excellent journals and held a B rating from the National Research Foundation, recognising the considerable international standing of her research. She organised conferences and served as an editor of the *Journal of Mathematical Analysis and Applications*. She represented South Africa at many international bridge championships and was a South African Open Teams Bridge champion alongside Gordon.

Even retired, Kathy wasn't done working, so she took visiting professorial positions at Vanderbilt University in 2017 and at Baylor University in 2019 and 2022. She loved these visits, and the students adored her. She received some of the strongest teaching evaluations the departments had ever seen. She enjoyed her research collaborations, but always remarked on how kind everyone was. Her colleagues always went out of their way to include her in their weekly Friday-evening gatherings for beer and pizza.

Kathy moved back to Johannesburg after Gordon passed away to be closer to her daughters, Jacqui and Penny. She lived in Franklin's Row and often said how grateful she was to Penny's in-laws for advising her to buy it when she was travelling and needed to put in an offer quickly. She loved the community at Franklin's Row and often mentioned the kindness of her neighbours who wouldn't take any money for the milk they got for her when her leg was hurt and she couldn't get to the shops herself. She loved her apartment and the way the sunlight streamed into her bedroom. She was always grateful that she was lucky enough to be born so happy. She loved visiting Hyde Park shopping centre and enjoyed the daily kindness of the parking guards always finding her a spot, the tellers opening tills for her, and the ladies who stamped her parking ticket. She liked to give as much positive feedback as she could and often told the managers what a great job they were doing and how kind and considerate all the staff were.

Kathy loved her life and spread as much joy as she could through her attentiveness and her grateful, generous nature. She couldn't say thank you just once, she really laid it on thick sometimes, but it was always so sincere and consistent. Kathy and Gordon were deeply loved and thoroughly deserving of that love, and their daughters will honour that legacy in their own lives through generosity, politeness and gratitude.

Kathy was a fantastic writer, a brilliant mathematician, a phenomenal teacher, a lover of classical music, a fierce tennis player, a wonderful bridge player and a great mother. She was always grateful and always optimistic. She left this world after a short illness, with no regrets and on her own terms—just as she would have wished.

A lyric from Taylor Swift's song *Marjorie*, written in memory of her grandmother, beautifully captures Kathy's spirit: "Never be so clever you forget to be kind, never be so kind you forget to be clever."

Love you Momma.

★ ★ ★

Dean's Desk: Emeritus Professor Kathy Driver (1947–2026)

Communications Manager: Mr Hishamodien Hoosain (Hishamodien.hoosain@uct.ac.za)

Faculty Manager: Ms Karen Wienand (karen.wienand@uct.ac.za)

Ex-Assistant Dean: A/Prof. David Gammon (david.gammon@uct.ac.za)

The University of Cape Town (UCT) community mourns Emeritus Professor Kathy Driver, who passed away after a short illness on 13 June 2026 at the age of 79.

She joined UCT in 2006 as the Dean of the Faculty of Science, becoming the first woman to occupy this position, and bringing with her decades of experience from the University of the Witwatersrand, where she had served as professor and the head of Mathematics. At UCT, she approached leadership less as administration and more as a way of making space for others to thrive. That meant supporting colleagues and paying attention to the everyday environments where teaching and research happen, as well as actively encouraging the sharpening of the focus of those endeavours to prioritise sustainable standards of excellence.

A mathematician by training and temperament, her research focused on special functions, orthogonal polynomials and approximation theory. Those who worked with her recognised the same qualities in her leadership: she was thorough and thoughtful; enthusiastic in her work; and known for a dry, witty sense of humour. She was also known for her love of large cups of sweet tea, which saw her through many working days.

Her academic journey was itself a lesson to many. After early success, she returned later in life to complete her PhD, balancing scholarship with family and teaching. She spoke openly about this path, encouraging younger academics, particularly women, to pursue ambition without apology, but with realism and care.

After stepping down as dean in 2011, she continued as a professor before becoming emeritus professor in 2013. Her impact extended well beyond formal titles – through her students, her colleagues, and her commitment to strengthening science in South Africa. Kathy's contributions were widely recognised, including her election to the Academy of Science of South Africa.

From 2011, Kathy returned to another passion – bridge – playing at a competitive level. She represented South Africa in the seniors' team alongside her late husband, Gordon Driver. Among her achievements were participation in the World Mind Sports Games in 2012 and representing Africa in the World Seniors Team Championships in 2017.

She is remembered not only for what she achieved, but for the way she approached her work. There was a sense of integrity and generosity in how she went about things, and a belief that meaningful work takes time to build.

She is survived by her daughters, Jacqui and Penny. She will be deeply missed by the many people whose lives and careers she helped shape.



Figure 10: Kathy Driver, Dean of the Faculty of Science at UCT in 2006.

Memories of Kathy Driver

Amanda Weltman (awelti@gmail.com)

When I joined The University of Cape Town (UCT), Kathy was the Dean, and I felt she really went out of her way to facilitate my move to UCT. I felt welcomed and valued and it did not take long for me to recognize a kindred spirit. She was someone I deeply admired and respected, and every interaction with her left me a little wiser.

Kathy was generous in every sense of the word—with her wisdom, her warmth, her wit, and her remarkable insight. She forged an extraordinary career in mathematics at a time when there were even fewer women in the field than there are today, and she was always willing to share the lessons she had learned along the way. One piece of advice has stayed with me ever since. She warned me never to accept a part-time position, explaining that it too often became full-time work for part-time pay. She described it as one of the traps that women of her generation had faced, and her honesty and candour made a lasting impression on me. She delighted in my successes and was a generous friend and mentor.

Over the years, Kathy became not only a valued colleague but also a dear friend. I am profoundly grateful for the time we shared, for her mentorship, her encouragement, and her unwavering generosity of spirit. She leaves behind an enduring legacy in the lives of the many people she guided and inspired. I will miss her very much.

Prof. Amanda Weltman, South African Research Chair in Physical Cosmology,
High Energy Physics, Cosmology & Astrophysics Theory (HEPCAT) group,
Department of Mathematics and Applied Mathematics,
University of Cape Town, South Africa

★ ★ ★

Some Memories of Kathy Driver

Doron Lubinsky (lubinsky@math.gatech.edu)

I first got to know Kathy Driver when I joined the Mathematics Department at Witwatersrand University in 1989, where she had been a very popular lecturer for a long time. I soon learned about her versatility – she had played both tennis and bridge for South Africa. She had been a graduate student at Stanford, where she briefly worked with the Fields Medalist Paul Cohen, graduating with a Masters in 1971, but returned to South Africa to marry and raise a family. During that period, she gave mathematics research a rest.

In some ways, Kathy's return to research is reminiscent of that of the Swiss mathematician Alice Roth. Roth proved fundamental results on rational approximation in her thesis, then taught for decades at a high school. After retiring and a break of over thirty years, Roth went on to prove further fundamental results.

Kathy and I looked at several possible projects for her Ph.D. thesis and finally settled on Padé approximation. Peter Wynn had established explicit formulae for the Padé approximants to certain basic (or q) hypergeometric series in the 1960's. We decided to investigate convergence of sequences of the approximants, for the exceptional case where q is on the unit circle. For such q , Wynn's series typically have natural boundaries on their circle of convergence. Part of the motivation was to look for a counterexample to the Baker–Gamel–Wills Conjecture on the diagonal of the Padé table.

Within fairly quick succession, Kathy's energy and drive led to several papers on convergence of Padé approximants to Wynn's Series, with interesting discoveries where complex analysis, potential theory, and Diophantine approximation played a role. Her thesis was completed in 1991. Kathy began attending mathematics conferences abroad. Her lively and friendly personality made her a popular participant and resulted in many collaborations.

Over the years, Kathy had at least 30 collaborators, working on a broad range of problems. With Herbert Stahl, she worked on Hermite–Padé approximants. Together with Peter Sarnak and George Petruska she investigated irregular distribution of fractional parts of irrational numbers. With Annie Cuyt, Kathy investigated multivariate Padé approximants. With Nico Temme there was work on asymptotics related to the exponential function. With Peter Duren there was work on the zeros of hypergeometric functions. With Claude Brezinski, there was work on zeros for quasi-orthogonal polynomials. Her longest collaboration was with Kerstin Jordaan with whom she wrote 18 papers, primarily related to zeros of special functions and orthogonal polynomials. Of course this is not a complete list and I apologize to those excluded.

All the while, she continued her busy teaching schedule and was a quite a force in the Department of Mathematics at Wits. She and her husband Gordon entertained many visiting mathematicians. I remember a party at her house for Paul Erdős, where he amused Kathy's daughters by dropping a ball and catching it with the same hand.

I recall (but cannot find details) that Kathy was involved in outreach to local schools long before this became fashionable. She served as head of the Department of Mathematics at Wits University from 1999 to 2005 and then as Dean of the Faculty of Science at the University of Capetown from 2006 to 2011. Kathy retired in 2013, but continued to play in bridge tournaments in Europe. Kathy stayed active in research, also serving as an Associate Editor for Journal of Mathematical Analysis and Applications. She

spent semesters teaching at Vanderbilt University and Baylor University, teaching and collaborating with faculty there.

Kathy's influence on mathematics in South Africa, especially on the topic of orthogonal polynomials, survives in the students she supervised – notably Kerstin Jordaan, who in turn has brought other students into this field. Her work on zeros of orthogonal polynomials is highly cited and will continue to have real impact. She will be remembered as a lively, outgoing, friendly, and energetic person, with many talents, who lived a very full life, and left a positive impact on a great many people and communities.



Figure 11: Kathy, Hong Kong 2017.

Obituary for Kathy Driver

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

Sad news reached us once again that one of our friends and beloved colleagues passed away. Kathy Driver was a regular participant at the OPSFA meetings and other international meetings on orthogonal polynomials, special functions and approximation theory. I first met her on a conference in approximation theory in Austin, Texas in 1992 and we immediately discovered we share a similar taste of mathematics and humour. Kathy obtained her bachelor's degree in mathematics in 1966 from the Witwatersrand University in South Africa and then went to Stanford for a master's degree which she obtained in 1971. Then her academic career was on hold for almost two decades but she took up the academic challenge and obtained a PhD in mathematics at the Witwatersrand University in 1991 under the supervision of Doron Lubinsky. She was head of the Department of Mathematics of Witwatersrand which transformed to the School of Mathematics (1999–2005) and then she moved to the University of Cape Town where

she became Dean of the Faculty of Science in 2006, a position which she held until 2011. She retired and became an emeritus professor in 2013. She was also a very skilled bridge player and represented South Africa in international competitions along with her husband Gordon Driver.



Figure 12: Kathy Driver having lunch in Leuven (1996).

A lot of her mathematical work is joint work, especially with Kerstin Jordaan (18 papers), who was her PhD student, with Martin Muldoon (9 papers), with Herbert Stahl (6 papers) and many others. Her main interest was in zeros of classical orthogonal polynomials, in particular interlacing properties and bounds for extreme zeros. In her work with Kerstin Jordaan, Martin Muldoon (and others) the parameters of Jacobi polynomials or Laguerre polynomials are allowed to violate the conditions for which the polynomials satisfy the usual real orthogonality so that interesting behaviour can be observed: multiple zeros are possible and complex zeros appear, often with a nice pattern. She also investigated the zeros of other hypergeometric polynomials and linear combinations of orthogonal polynomials. Her work with Herbert Stahl is mostly on normality of Nikishin systems. They showed that a Nikishin system of order two (Hermite–Padé approximation for two functions) is a perfect system and for a Nikishin system of order r they showed that all multi-indices for which $n_j \geq \max(n_{j+1}, \dots, n_r) - 1$ ($j = 1, 2, \dots, r-1$) are normal. Nowadays we know that all multi-indices for a Nikishin system of any order are normal, thanks to the work of Guillermo López Lagomasino and Ulysses Fidalgo Prieto.

Kathy was always an interesting person to talk to, not only about mathematics but she was also keen to discuss other issues and often with her dry sense of humour. She will certainly be missed at our future meetings.

Walter Van Assche, KU Leuven

★ ★ ★

A remembrance of Kathy Driver

Ed Saff (edward.b.saff@vanderbilt.edu)

Kathy and I had very many good times together, especially when my wife and I visited Capetown and when Kathy was a visiting professor at Vanderbilt. And we of course met many times at conferences to share mathematics and good conversation. Kathy was always a joy to have in any social situation.

Kathy, not surprisingly, left an excellent impression here at Vanderbilt when she visited. And just a couple of years ago I was trying to convince her to return to Vanderbilt as a visiting instructor, but unfortunately was not successful (perhaps her reluctance was impacted by her feeling of ill health after returning from Baylor).

As I reminisce, I keep returning to that amazing week in Capetown when Kathy and I met, each of us as deans of our respective universities, when we helped to forge a cooperation agreement between our institutions, one that lasted for several fruitful years. That we met as deans after having known each other only as researchers with common interest in orthogonal polynomials was indeed a marvelous coincidence.

★ ★ ★

Memories of Kathy Driver

Andrei Martínez–Finkelshtein (a_martinez-finkelshtein@baylor.edu)

When I learned of Kathy Driver’s passing, I found myself revisiting memories that span more than three decades. They are memories not only of an outstanding mathematician, but of a generous friend, an enthusiastic collaborator, and an extraordinary human being.

I first met Kathy at the 1994 International Congress of Mathematicians in Zürich. I had just finished my Ph.D. in Moscow, and was attending my first ICM representing Cuba. For me, meeting Kathy Driver and Herbert Stahl was unforgettable. They were already mathematicians whose work I deeply admired—people I regarded almost as idols—and I was an inexperienced young researcher who could hardly believe I was talking to them. Neither of them made me feel like an outsider. Kathy, in particular, had a warmth



Figure 13: Kathy Driver dancing with friends in Patras (1999). From left-to-right: Walter Van Assche, Els Coussement (Walter's PhD student), Christian Berg, Kathy Driver, Nikos Stylianopoulos and Arno Kuijlaars.

and openness that immediately put people at ease, a quality that remained unchanged throughout the many years I knew her.

One of my fondest memories is my visit to South Africa in 2005. Kathy and Kerstin Jordaan were exceptional hosts, eager to share not only their country but also its history and its complexities. Among many wonderful experiences, I particularly remember our visit with Kathy to the Apartheid Museum, which left a profound impression on me, and the visit to Soweto that she thoughtfully arranged. Those experiences gave me a much deeper understanding of South Africa than I could ever have gained as an ordinary visitor, and they reflected Kathy's desire to help others appreciate both the beauty and the difficult history of her homeland. This remains one of the most memorable trips of my life.

Years later, when I was struggling with the difficult decision of whether to move to Baylor University, Kathy was one of the people whose advice and encouragement mattered most. She listened patiently,

shared her perspective with honesty and kindness, and gave me confidence at a moment when I was full of doubts. Looking back, I remain grateful for her support.

Whenever Kathy visited Baylor, we always found time for long conversations. I especially remember a trip we took together to Austin. Like so many discussions with Kathy, it effortlessly moved from mathematics to life, from travel to history, and back again. She had a remarkable curiosity about the world and an infectious joy in sharing ideas.

As a mathematician, Kathy possessed a rare enthusiasm. Whenever she became interested in a problem, she immersed herself completely. She could discuss an idea for hours, exploring every possible angle with genuine excitement. Her passion was contagious. Conversations with her were never merely technical; they were animated by her delight in discovery and by the conviction that every interesting question deserved to be understood as deeply as possible.

Kathy combined intellectual rigor with generosity, kindness, modesty, and an unmistakable sense of enthusiasm. She made people feel welcome, encouraged younger colleagues, and shared her love of mathematics without reservation. I feel fortunate to have known her for so many years, and I will always cherish the memories of our conversations, our travels, and our friendship.

She will be deeply missed.

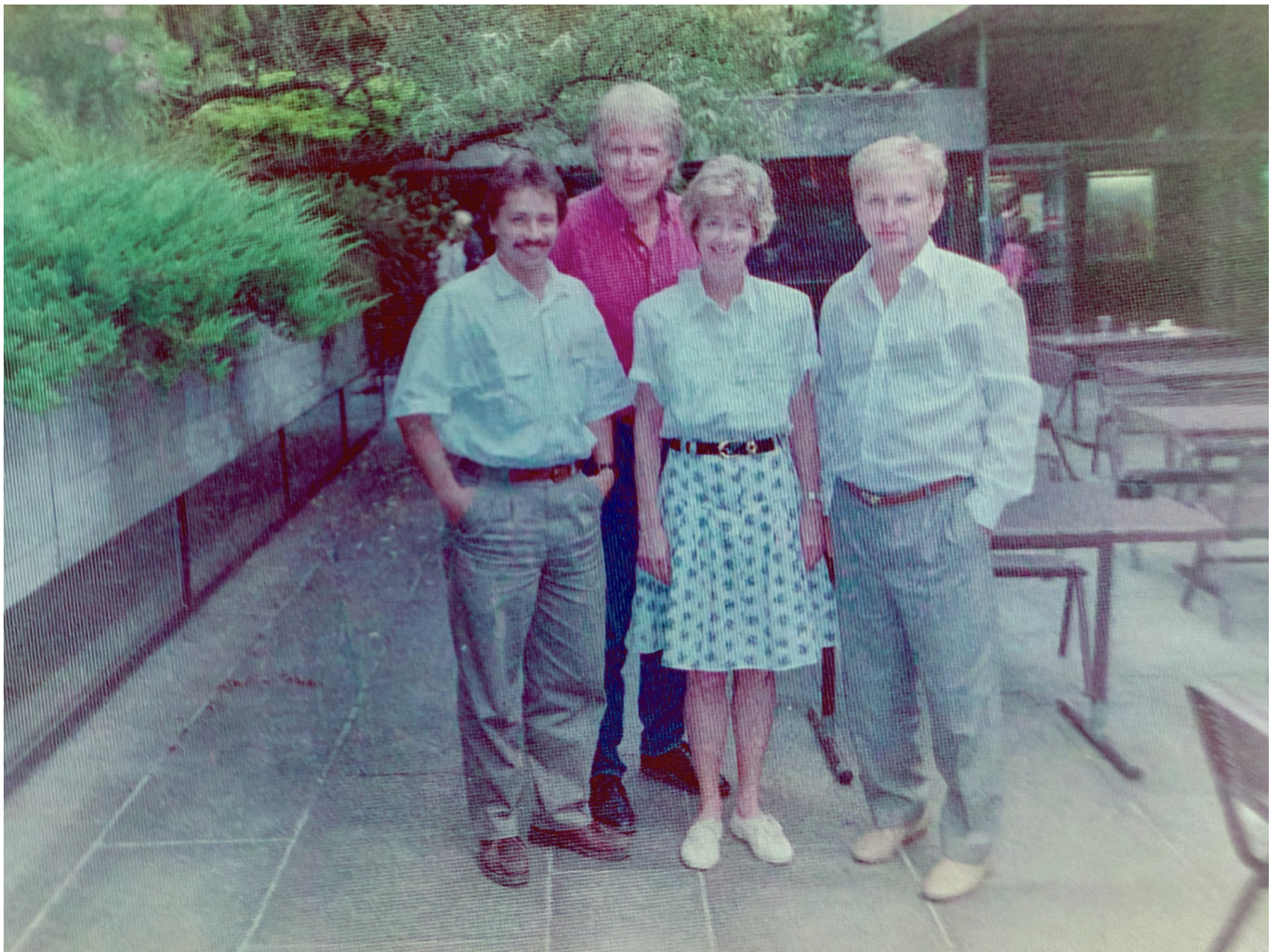


Figure 14: From left-to-right: Andrei Martínez-Finkelshtein, Herbert Stahl, Kathy Driver, Vasiliy Prokhorov. ICM'94, Zürich, August 1994.



Figure 15: Kathy with Persi Diaconis (left) and Andrei Martínez-Finkelshtein (right), Hong Kong 2017.

Kathy Driver

Lance Littlejohn (Lance_Littlejohn@baylor.edu)

My wife, Wendy, and I were very saddened to learn of Kathy's passing. I have known Kathy for more than 30 years and enjoyed seeing her at OPSFA and other meetings in the 1990's and the early years after 2000.

Besides being a tennis champion and a world-class Bridge player, Kathy was a first-rate mathematician. She was also an excellent teacher and speaker. Each lecture Kathy gave at conferences was immaculately prepared, precise, and well-delivered. It is notable that the lecture room where Kathy spoke was always full.

When I was chair of the mathematics department at Baylor, I invited Kathy to spend fall semester with us in 2019. She taught calculus and we started on a research project with Jorge Arvesu, who was visiting from Spain. Kathy loved teaching and her students loved her. Her student evaluations were off-the-charts excellent. She was very active in the department and organized get-togethers with our graduate students and faculty to learn and play Bridge. Kathy was also a regular attendee at Fritz Gesztesy's 'beer summits' after work on Fridays. Kathy's wit and intellect were always a highlight of these 'important' meetings.

Kathy returned to Baylor in the fall of 2022 and we resumed our collaboration with Jorge. Our work culminated in two papers on the zeros of Jacobi and Laguerre polynomials, one of Kathy's research specialties. Jorge and I both agreed that it was a pleasure and a delight to work with Kathy.



Figure 16: Kathy Driver and Guillermo López-Lagomasino. V OPSFA, Patras (Greece), September 21, 1999. Photograph taken by Andrei Martínez-Finkelshtein.

I remember one particularly funny story involving Kathy. On her first visit to Baylor – actually the day she arrived in Waco – my wife and I invited Kathy over for a prime rib dinner. Just the three of us. We live about twenty miles from Baylor where Kathy stayed in a campus apartment. Wendy volunteered to pick up Kathy and I was tasked with setting the table and keeping a watchful eye on the roast in the oven. Simple job. But Wendy and Kathy were horrified as they approached the house to see a large fire truck and smoke billowing from one of our windows. They were further shocked when they entered the house to see two burly firemen (according to Kathy and Wendy, they were very good-looking too), in full gear, checking the house out for fire. I had over-cooked the prime rib and smoke from the oven set off the fire alarm and alerted the local fire department. It all ended well with the five of us, including the two burly, good-looking firemen, enjoying pizza that we had delivered. I do not remember Kathy's exact words at the end of that evening but it was something like "I hope the rest of my stay at Baylor is less exciting".

Rest in peace, dear Kathy. We will all miss you.

A remembrance of Kathy Driver

Alan Sokal (a.sokal@ucl.ac.uk)

I was stunned and saddened to hear the news of Kathy's sudden death. I first met Kathy back in 2011 at an American Institute of Mathematics workshop in Palo Alto, and we have had off-and-on e-mail

correspondence over the years ever since. In particular, Kathy was planning to help me complete an unfinished 2012 manuscript of mine concerning the zeros of Laguerre polynomials. I will now have to do it without the benefit of Kathy's expert knowledge. It will be dedicated to her memory.

Kathy Driver

Claude Brezinski (claude.brezinski@univ-lille.fr)

Kathy was a very good friend of Michela (Redivo-Zaglia) and me. She was a fine mathematician and a nice person. I knew her for 40 years. I think she was proud that the paper we wrote together was her most quoted one. I miss her.

Various photographs of Kathy Driver



Figure 17: Kathy chatting with Herbert Stahl at the International Workshop on Orthogonal Polynomials and Approximation Theory held in 2008 in Madrid to honor of the 60th birthday of Guillermo López-Lagomasino. Photograph courtesy of Héctor Pijeira-Cabrera.



Figure 18: International Workshop on Orthogonal Polynomials and Approximation Theory held in 2008 in Madrid to honor the 60th birthday of Guillermo López-Lagomasino. Photograph courtesy of Héctor Pijeira-Cabrera.

Topic #12 ——— OP – SF Net 33.4 ——— July 15, 2026

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

The following preprints related to the fields of orthogonal polynomials and special functions were posted or cross-listed to one of the subcategories of arXiv.org during May and June 2026. This list has been separated into two categories.

OP–SF Net Subscriber E-Prints

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

A local bijection between alternating sign matrices and descending plane partitions and a Striker–Fulmek-type q -statistic

Michael J. Schlosser

<http://arxiv.org/abs/2605.01747>

A bibasic double sum extension of a q -binomial theorem arising out of subspace enumeration

Gaurav Bhatnagar, Amritanshu Prasad

<http://arxiv.org/abs/2605.02251>

On conjectural fermionic formulas for the Macdonald index in Argyres–Douglas theories

Shane Chern, Chanh Tran, Tanay Wakhare



Figure 19: International Workshop on Orthogonal Polynomials and Approximation Theory held in 2008 in Madrid to honor the 60th birthday of Guillermo López-Lagomasino. Photograph courtesy of Héctor Pijeira-Cabrera.

<http://arxiv.org/abs/2605.03896>

Dimer models on astroidal zig-zag graphs

Tomas Berggren, Alexei Borodin, Terrence George



Figure 20: International Workshop on Orthogonal Polynomials and Approximation Theory held in 2008 in Madrid to honor the 60th birthday of Guillermo López-Lagomasino. Photograph courtesy of Héctor Pijeira-Cabrera.

<http://arxiv.org/abs/2605.04027>

Padé Approximants for Geodesy

Ovidiu Costin, Gerald V. Dunne, Crichton Ogle

<http://arxiv.org/abs/2605.04301>

Super Krawtchouk Polynomials via Lie Superalgebras

Plamen Iliev, Songhao Zhu

<http://arxiv.org/abs/2605.05094>

Theta functions and transformations of bilateral basic hypergeometric series

Nian Hong Zhou

<http://arxiv.org/abs/2605.05180>

On Turán's inequality: new general criteria, nonnegative representations and the class of generalized Chebyshev polynomials

Stefan Kahler

<http://arxiv.org/abs/2605.05186>

Appell function proofs of recent and old mock theta function identities

Marioni Aronia, Eric T. Mortenson

<http://arxiv.org/abs/2605.07380>

Counting LEGO configurations

Anthony J. Guttmann, Rasmus M. Nilsson



Figure 21: International Workshop on Orthogonal Polynomials and Approximation Theory held in 2008 in Madrid to honor the 60th birthday of Guillermo López-Lagomasino. Photograph courtesy of Héctor Pijeira-Cabrera.

<http://arxiv.org/abs/2605.08484>

Learning from Ramanujan: Elementary Approaches to Profound Ideas
Zachary P. Bradshaw, C. Vignat

<http://arxiv.org/abs/2605.12572>

Chewing gums, snakes and candle cakes
Benedetta Facciotti, Marta Mazzocco, Nikita Nikolaev

<http://arxiv.org/abs/2605.13124>

Polynomial interpolation-regression on the sphere
Francesco Dell'Accio, Federico Nudo, Teresa E. Pérez, Miguel A. Piñar

<http://arxiv.org/abs/2605.13666>

When Does the Dice Sum Become Prime?
Christoph Koutschan, Tipaluck Krityakierne, Thotsaporn Aek Thanatipanonda

<http://arxiv.org/abs/2605.15740>

Bailey pairs, Eichler integrals and unified Witten–Reshetikhin–Turaev invariants
Jeremy Lovejoy, Robert Osburn, Matthias Storzer

<http://arxiv.org/abs/2605.16240>

Evaluation of two determinants involving q -integers
Zhi-Wei Sun



Figure 22: Conference in honour of Tom Koornwinder's 60th birthday, Amsterdam, 2003. Participants, including Kathy Driver and Kerstin Jordaan, boarding a canal round-trip boat.

<http://arxiv.org/abs/2605.18651>

Arbitrary-genus dark soliton gases in the defocusing nonlinear Schrödinger hydrodynamics

Marco Bertola, Deng-Shan Wang, Peng Yan, Dinghao Zhu

<http://arxiv.org/abs/2605.19085>

My Warm, Randomly Recorded, Recollections of Professor Richard Askey

Sergei K. Suslov

<http://arxiv.org/abs/2605.19475>

Algebraic Leonard trio approach to rational functions: the Hahn case

Nicolas Crampé, Quentin Labriet, Lucia Morey, Luc Vinet

<http://arxiv.org/abs/2605.20903>

The extra slow Tamari lattice

Sylvie Corteel, Jihyeug Jang, Baptiste Rognerud

<http://arxiv.org/abs/2605.21067>

Quasiautomorphic forms are isomorphic to vector-valued automorphic forms

Michael Andrew Henry

<http://arxiv.org/abs/2605.23720>

On a general method for deriving a fourth-order differential equation satisfied by Laguerre–Hahn orthogonal polynomials with new results for the class 0 analogous to Hermite

Mohamed Khalfallah, Pascal Maroni, Zélia da Rocha

<http://arxiv.org/abs/2605.25108>

Pointwise behavior of $SU(1,1)$ nonlinear Fourier transform

Sergey A. Denisov

<http://arxiv.org/abs/2605.25238>

Optimal discrete p –Hardy–Rellich–Birman inequalities

František Štampach, Jakub Waclawek

<http://arxiv.org/abs/2605.26011>

Well-poised basic q –Taylor expansions with complementary remainders and a two-basis kernel

Abdulhafeez A. Abdulsalam, Michael J. Schlosser

<http://arxiv.org/abs/2605.26281>

A description of the Laguerre–Hahn orthogonal polynomials of class zero revisited with two new families analogous to Bessel and new results for structure relations and differential equations

Mohamed Khalfallah, Pascal Maroni, Zélia da Rocha

<http://arxiv.org/abs/2605.26846>

Signed Generalized Stirling Polynomials, Nested Sums, and Hyperbolic Secant Integral Identities

Abdulhafeez A. Abdulsalam, Michael J. Schlosser

<http://arxiv.org/abs/2605.27828>

Sprout Symmetric Functions: Part 1

Tewodros Amdeberhan, John Shareshian, Richard P. Stanley

<http://arxiv.org/abs/2605.29792>

The manufacture of examples: the (-1) –classical orthogonal polynomials

K. Castillo, G. Gordillo–Núñez

<http://arxiv.org/abs/2606.01140>

q –Selberg extensions of Gasper’s two stage q –beta integrals

Masahiko Ito, Peter J. Forrester

<http://arxiv.org/abs/2606.01337>

Finite Kleshchev bipartitions and q –trinomial coefficients

Shane Chern

<http://arxiv.org/abs/2606.02405>

Mehler formula for Wronskians of Hermite polynomials

Alexey Kuznetsov, Minjian Yuan

<http://arxiv.org/abs/2606.02989>

The Benjamin–Ono Equation in the Long–Time Limit: Linearized Self–Similar Universality

Louise Gassot, Patrick Gérard, Peter D. Miller

<http://arxiv.org/abs/2606.04024>

Delta-pulse solution in Zener viscoelastic model

Andrea Mentrelli, Juan Luis Gonzalez-Santander, Francesco Mainardi

<http://arxiv.org/abs/2606.04179>

Functional Scaling Limits of Interpolated Correlated Random Walks in Hölder Topology

Felix Benning, Ivan Nourdin

<http://arxiv.org/abs/2606.04225>

On the fundamental solutions of two nonlocal parabolic equations related to logarithmic Laplacians

Bart Rosenzweig, Jonathan Stanfill

<http://arxiv.org/abs/2606.04640>

From local to global asymptotic behaviour of orthogonal polynomials

Roman Bessonov, Artur Nicolau

<http://arxiv.org/abs/2606.05214>

Analytic umbral transmutations and Bessel moments

Roberto Ricci, Giuseppe Dattoli

<http://arxiv.org/abs/2606.05329>

On the Macdonald-type function and its relation with index transforms and orthogonal polynomials

Semyon Yakubovich

<http://arxiv.org/abs/2606.05393>

The Terwilliger algebra for the distance-regular graphs with valency three

Kevin Kauflin, Paul Terwilliger, Barnabás Valkó, Jimmy Vineyard, Hanyi Wu

<http://arxiv.org/abs/2606.05439>

In How Many Ways can a Rectangle be Rectangled?

Pablo Blanco, Robert Dougherty-Bliss, Natalya Ter-Saakov, Doron Zeilberger

<http://arxiv.org/abs/2606.08337>

A Remark on the Odd Area of Unit Disks

Stefan Steinerberger

<http://arxiv.org/abs/2606.10134>

Clock spacing for two-sided Jacobi matrices

Benjamin Eichinger, Milivoje Lukić, Giorgio Young

<http://arxiv.org/abs/2606.11273>

Preconditioning for near-contacts in large 2D Stokes flows: a locally compressed method of fundamental solutions

Anna Broms, Anna-Karin Tornberg, Alex H. Barnett

<http://arxiv.org/abs/2606.11621>

The general Brannan coefficient conjecture II: Meijer-function approximations

T. M. Dunster

<http://arxiv.org/abs/2606.12121>

Pure Point Spectrum is Generic

Artur Avila, David Damanik

<http://arxiv.org/abs/2606.12359>

Capparelli's partition theorem as part of an infinite hierarchy: Combinatorial and Weighted Words extensions of recent work

Yazan Alamoudi, Krishnaswami Alladi

<http://arxiv.org/abs/2606.12907>

Effective Estimates for a Class of Farey Fraction Sums and Bounds for Mundici-Type Constants

Anji Dong, Huy Xuan Nguyen, Vi Anh Nguyen, Alexandru Zaharescu

<http://arxiv.org/abs/2606.13965>

A remark on Chebyshev rational functions, multipoint Padé approximants and Noise

Maxim Derevyagin, Max Meynig

<http://arxiv.org/abs/2606.14680>

Sum of parts in overpartitions and partitions without repeated odd parts

Frank Garvan, Rishabh Sarma

<http://arxiv.org/abs/2606.14793>

Novel series involving families of zeta functions and special functions and polynomials by applying Norlund sum and derivative formula

Elif Sukruoglu, Yilmaz Simsek

<http://arxiv.org/abs/2606.15003>

Multiplicative and Additive Finite Free Convolutions for q -Polynomials

Andrei Martínez-Finkelshtein, Daniel Perales, Rafael Morales

<http://arxiv.org/abs/2606.15235>

The Standard Model Gauge Group from the Exceptional Jordan Algebra

John C. Baez, Paul Schvahn

<http://arxiv.org/abs/2606.16647>

Generalized Bell polynomial operators arising from generalized normal ordering

Taekyun Kim, Dae san Kim

<http://arxiv.org/abs/2606.17238>

Vector peakon equations and isospectral flows in Clifford algebras

Andrew N. W. Hone, Vladimir S. Novikov, Jacek Szmigielski

<http://arxiv.org/abs/2606.17864>

Weak and strong q -analogs of the Laguerre-Pólya class

D. K. Dimitrov, B. Shapiro

<http://arxiv.org/abs/2606.18445>

A spectral based coefficient of determination for the fit of an $MA(q)$ model

Holger Dette, Sebastian Kühnert

<http://arxiv.org/abs/2606.18578>

Classification of the hypergeometric orthogonal polynomials via their recurrence coefficients

Luis Verde-Star

<http://arxiv.org/abs/2606.18904>

General duality relations for hypergeometric and basic hypergeometric series

Dmitrii Karp, Yi Zhang

<http://arxiv.org/abs/2606.19614>

On a class of modified Cayley–Magnus methods

Sergio Blanes, Fernando Casas, Arieh Iserles

<http://arxiv.org/abs/2606.20439>

Four–digit Kaprekar dynamics in odd bases

Evan Chen, Ken Ono, Richard E. Schwartz, Dinesh S. Thakur

<http://arxiv.org/abs/2606.21248>

Some Remarks About Integral Categories

Yaroslav Kopylov, Max Zinchenko

<http://arxiv.org/abs/2606.21477>

Commentary on Askey’s Szegő paper

Barry Simon

<http://arxiv.org/abs/2606.21780>

Congruences for Overcubic Partition k –Tuples

Daniel Chacón, James A. Sellers

<http://arxiv.org/abs/2606.22526>

The conditional expectation of the product of the first $n - 1$ Hermite polynomials in a multivariate normal distribution with respect to the n –th variable. A fresh perspective on the Kibble–Slepian formula

Paweł J. Szabłowski

<http://arxiv.org/abs/2606.23765>

Group Permanents of Abelian p –Groups and Young Diagrams

Naoya Yamaguchi, Yuka Yamaguchi

<http://arxiv.org/abs/2606.24401>

Morse momentum wavefunctions and rational functions

Luc Vinet, Alexei Zhedanov

<http://arxiv.org/abs/2606.24423>

A sparse spectral method on a class of domains bounded by planar algebraic curves

Jiajie Yao, Marco Fasondini, Sheehan Olver

<http://arxiv.org/abs/2606.25252>

A Riemann–Hilbert approach to the computation of transform pairs

Kaitlynn Lilly, Thomas Trogdon

<http://arxiv.org/abs/2606.25994>

Index estimates for planar domains with Robin boundary condition

Abraão Mendes

<http://arxiv.org/abs/2606.26208>

Askey–Wilson continued fraction at $q^N = 1$

A. R. Ismailov, V. P. Spiridonov

<http://arxiv.org/abs/2606.26737>

Chromatic expansion with Bessel operator of fractional order

M. Chegaar, Á. P. Horváth

<http://arxiv.org/abs/2606.27125>

The Ising Model Coupled to 2D Gravity: Critical Partition Function

Maurice Duits, Nathan Hayford, Seung–Yeop Lee

<http://arxiv.org/abs/2606.27212>

A direct proof of Mono–Rolen–Stumpenhusen and new constructions via the Maass raising operators

Kathrin Bringmann, Ben Kane

<http://arxiv.org/abs/2606.28579>

Transition asymptotics for the real solutions of the sinh–Gordon Painlevé III equation

Kenta Miyahara, Maxim L. Yattselev

<http://arxiv.org/abs/2606.28606>

On a conjecture on k –antichains in the unit n –cube

John M. Campbell

<http://arxiv.org/abs/2606.28678>

Stein’s method for the symmetric matrix normal distribution with an application to the approximation of the Wishart law

Robert E. Gaunt, Frédéric Ouimet

<http://arxiv.org/abs/2606.29040>

Distribution of random multiplicative functions in short intervals, with proper normalization

Adam J. Harper, Kannan Soundararajan, Max Wenqiang Xu

<http://arxiv.org/abs/2606.30208>

On a two–color partition series and its companions

George E. Andrews, Mohamed El Bachraoui

Other Relevant OP–SF E–Prints

<http://arxiv.org/abs/2605.00673>

Modular Forms and Numerical Explorations of Rational Approximations to $\zeta(3)$

Cynthia Bortolotto, Lucas Oliveira

<http://arxiv.org/abs/2605.00811>

Conjectural duality for iterated q –integrals on $\mathbb{P}^1$ minus four generic points

Minoru Hirose

<http://arxiv.org/abs/2605.01406>

Special Solutions of q –Heun Equation by q –Integral Transformations

Ayaka Murakami, Kouichi Takemura

<http://arxiv.org/abs/2605.02530>

A partial dictionary between universal central extensions and orthogonal polynomials in the superelliptic Krichever–Novikov setting

Felipe Albino dos Santos

<http://arxiv.org/abs/2605.03200>

Analytic summation of series involving higher-order derivatives of Chebyshev polynomials of the second kind and their applications to convolved linear recurrent sequences
Dmitriy Dmitrishin, Daniel Gray, Vitaly Khamitov, Alexander Stokolos

<http://arxiv.org/abs/2605.03665>

Joint extreme values of L -functions on and off the critical line
Athanasios Sourmelidis

<http://arxiv.org/abs/2605.04417>

Fixed-point lifting and ghost periodic points for Chebyshev polynomials modulo odd prime powers
Chatchawan Panraksa, Aram Tangboonduangjit

<http://arxiv.org/abs/2605.06079>

Accessory Parameter of Confluent Heun Equations, Voros Periods and classical irregular conformal blocks
Kohei Iwaki, Hajime Nagoya, Ayato Shukuta

<http://arxiv.org/abs/2605.06369>

On the dimension of the space generated by characteristic vectors of q -Steiner systems
Qilong Li, Charlene Weiß, Yue Zhou

<http://arxiv.org/abs/2605.07580>

On ratios of theta functions
Senping Luo, Juncheng Wei

<http://arxiv.org/abs/2605.07787>

Orthogonal Polynomials, a Szegő-Verblunsky Theorem and Baxter's Theorem on the Quaternionic Sphere
Connor J. Gauntlett, David P. Kimsey

<http://arxiv.org/abs/2605.09683>

Rook theory, normal ordering in the q -deformed Ore algebra and the polynomial generalization
Matthias Schork

<http://arxiv.org/abs/2605.12822>

Unimodality of q -Fibonomial coefficients for small cases
Brendan B. Connelly, Ezekiel Ito, Thomas C. Martinez, Olha Shevchenko, Kacey Yang

<http://arxiv.org/abs/2605.13432>

Inhomogeneous q -Whittaker polynomials II: ring theorem and positive specializations
Ajeeth Gunna, Damir Yeliussizov

<http://arxiv.org/abs/2605.13512>

Hydrodynamic limits for TASEP with space-time discontinuities
Jacob Butt, Nicos Georgiou, Enrico Scalas

<http://arxiv.org/abs/2605.14669>

Darboux-type formula for Jacobi biorthogonal polynomials
Zhaofeng Lin, Kai Wang, Zhanhang Zheng

<http://arxiv.org/abs/2605.14682>

Combinatorial study of the q -Catalan triangle and its generalizations
Youssef Wirdane

<http://arxiv.org/abs/2605.16042>

Epstein vector zeta functions related to the ADE Lie algebras
M. Olshanetsky

<http://arxiv.org/abs/2605.16287>

On Combinatorial Properties of the degenerate Krawtchouk Appell polynomials
Mohamed Abdelkader, Mohamed Rhaima

<http://arxiv.org/abs/2605.16773>

Shifted quantum toroidal algebra of type $\mathfrak{gl}_{1|1}$ and the Pieri rule of the super Macdonald polynomials
Hiroaki Kanno, Ryo Ohkawa, Jun'ichi Shiraishi

<http://arxiv.org/abs/2605.17452>

On the poles of zeta functions for finite morphisms between normal surfaces
Edwin León-Cardenal, Jorge Martín-Morales, Willem Veys, Juan Viu-Sos

<http://arxiv.org/abs/2605.17756>

Linear independence of periods related to polylogarithms
Makoto Kawashima

<http://arxiv.org/abs/2605.17872>

A note on the q -adic valuation of $\sigma_k(n)$
Olivier Bordellès

<http://arxiv.org/abs/2605.18021>

Unique continuation inequalities for the Dunkl-Schrödinger equation via uncertainty principles
Xingyu Zhao, Hui Xu, Zhiwen Duan

<http://arxiv.org/abs/2605.19372>

Some new estimates for generalized fractional integrals associated with operators on Morrey spaces
Hua Wang

<http://arxiv.org/abs/2605.21166>

Modified Painlevé systems with meromorphic solutions for polynomial Hamiltonians of all degrees
Marta Dell'Atti, Thomas Kecker

<http://arxiv.org/abs/2605.22421>

A quick distributional way to reproduce some results of the Riemann zeta function
Junfa Deng, Yunyun Yang, Hao Zhang

<http://arxiv.org/abs/2605.22688>

Subordination Associated with Laguerre polynomial
Anish Kumar

<http://arxiv.org/abs/2605.23003>

Symplectic lattice counting and zeta functions of higher Heisenberg groups
Jianhao Shen, Christopher Voll

<http://arxiv.org/abs/2605.23501>

Spectral distribution of Jacobi weighted histopolation matrices via GLT theory
Allal Guessab, Federico Nudo, Stefano Serra-Capizzano

<http://arxiv.org/abs/2605.23529>

Generalized Bessel–Dunkl diffusions

Jacek Małeck

<http://arxiv.org/abs/2605.25808>

Calderon–type commutators and chamber lifting in the Dunkl setting

Yongsheng Han, Ming–Yi Lee, Ji Li, Eric Sawyer, Liangchuan Wu

<http://arxiv.org/abs/2605.26488>

Notes on congruence zeta functions via a Berkovich approach

Yuto Yamada

<http://arxiv.org/abs/2605.26939>

Hybrid Ermakov–Ray–Reid/Painlevé II Symmetry Reduction: Application to a Class of Moving Boundary Problems

Colin Rogers, Adriana C. Briozzo

<http://arxiv.org/abs/2605.27552>

Riemann and the logarithmic derivatives of zeta

J. Arias de Reyna

<http://arxiv.org/abs/2605.28584>

A unified proof of conjectures on the spaces of multiple q -zeta values

Minoru Hirose, Takumi Maesaka, Taiki Watanabe

<http://arxiv.org/abs/2605.28610>

On the analytic continuation of the Riemann zeta function

Paolo Valtancoli

<http://arxiv.org/abs/2605.28841>

On Ramanujan’s q -Continued Fractions of Order Thirty–Four and Sixty–Eight

Dipika Sarkar, S. N. Fathima

<http://arxiv.org/abs/2605.29406>

Fractional Leibniz rules for the Dunkl Laplacian in Besov and Triebel–Lizorkin spaces

The Anh Bui, Xueting Han, Suman Mukherjee

<http://arxiv.org/abs/2605.29520>

On certain combinatorial expressions of TASEP transition probabilities

Lorenzo Vito Dal Zovo

<http://arxiv.org/abs/2605.29722>

A non–commutative discrete first Painlevé hierarchy: the Lax pair approach

Irina Bobrova

<http://arxiv.org/abs/2605.29903>

Where not to find the spectrum of the partial theta function

Yousra Gati, Vladimir Petrov Kostov

<http://arxiv.org/abs/2605.29991>

Complex spectrum of the partial theta function

Boris Shapiro

<http://arxiv.org/abs/2605.30766>

Two-weight inequalities for the Dunkl–Poisson integrals
Qingdong Guo, Ji Li, Brett D. Wick, Liangchuan Wu

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High moments of random multiplicative functions twisted by Fourier coefficients of modular forms
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Applications of a formula of Maesaka–Seki–Watanabe type for multiple harmonic q -sums
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Sharp sign uncertainty for trigonometric polynomials
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Shape changing identities for permuted–basement nonsymmetric Macdonald polynomials
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Analogues of the Lindelöf Hypothesis for the Barnes multiple zeta function and related problems
Takashi Miyagawa

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A q -Analogue of a Supercongruence Related to Van Hamme’s (B.2) Supercongruence
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Multiple zeta values ending with a fixed string

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Dual Gauss-Legendre polynomials

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Painlevé XXXIV asymptotics for the defocusing mKdV equation with step–like initial data in transition regions
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Two q –congruences from Jackson’s ${}_8\varphi_7$ summation and Andrews’ ${}_4\varphi_3$ summation
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Obstructions and kernel transport for Hecke lifts of partition q –brackets
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Ask zeta functions of central hyperplane arrangements
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Computation of the Fourier transform for a continuous integrable function via NFFT

Daniel Potts, Manfred Tasche

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Power series for roots of a trinomial and Kummer–like identities for higher order hypergeometric series

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A symmetry reduction of the Painlevé IV hierarchy to the Flaschka–Newell Painlevé II hierarchy

Mohamad Alameddine, Olivier Marchal

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The Fractional Dunkl Laplacian: Extension Problem and Fundamental Solution

Chaabane Rejeb

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Biggest bounded type Siegel disks of monic polynomials include those that stick to all critical points

Xavier Buff, Arnaud Chéritat, Pascale Roesch

<http://arxiv.org/abs/2606.25468>

An inequality for Jacobi polynomials: a complement to Finite Increment Theorem

Geno Nikolov

<http://arxiv.org/abs/2606.25739>

A novel $2+1$ –dimensional extended Dym equation: moving boundary problems solvable via Painlevé II symmetry reduction

Colin Rogers, Pablo Amster

Topic #13 ——— OP – SF Net 33.4 ——— July 15, 2026

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 33.5 should be sent by September 1, 2026.

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, forth–

coming 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>

Back issues of OP-SF NET can be obtained from: <https://staff.fnwi.uva.nl/t.h.koornwinder/opsfnet>

Information on joining SIAM and this activity group: service@siam.org

The elected Officers of the Activity Group (2025–2027) are:

Howard Cohl, Chair

Kerstin Jordaan, Program Director

Tom Trogdon, Secretary

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

Tom Koornwinder, SIAG/OPSF Archivist

Topic #14 ——— OP – SF Net 33.4 ——— July 15, 2026

From: OP-SF Net Editors

Subject: Thought of the Month by **Subrahmanyan Chandrasekhar** and **Eric Neville**

“India and the Indian scientific community were exceptionally fortunate in having before them the example of Ramanujan. It is hopeless to try to emulate him. But he was there even as the Everest is there.”

Subrahmanyan Chandrasekhar (1910–1995), banquet speech, June 3, 1987, celebration of the centenary of Ramanujan’s birth, University of Illinois, Urbana, Champaign.

★ ★ ★

“Srinivasa Ramanujan was a mathematician so great that his name transcends jealousies, the one superlatively great mathematician whom India has produced in the last thousand years.”

Eric H. Neville (1889–1961), broadcast in Hindustani in 1941, and later in *Srinivasa Ramanujan*, *Nature* **149** (1942), 292–295.

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Both quotes were contributed by Bruce Berndt on 2026–05–20.