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

http://math.nist.gov/opsf

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

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

Editors:

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

Topics:

Calendar of Events:

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

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

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

July 28–August 1 , 2025
The Third Joint SIAM/CAIMS Annual Meetings (AN25)
Montréal, Québec, Canada
https://www.siam.org/conferences-events/siam-conferences/an25/

August 19–22, 2025
Extremal Polynomials and Dynamical Systems
Carlsberg Academy, Copenhagen, Denmark
https://www.math.ku.dk/english/calendar/events/epds/

July 8–18, 2026
Foundations of Computational Mathematics (FoCM 2026), University of Vienna, Vienna, Austria
https://focm-society.org/

Workshop related to SIAG/OPSF:

Session, Date yet unknown: **Orthogonal Polynomials and Special Functions**
Organizers: "are to be confirmed."

Topic #1 ——— OP - SF Net 32.2 ——— March 15, 2025

From: OPSFA Steering Committee
Subject: Announcement: OPSFA-18 to be held at Doshisha University, Kyoto, Japan

Dear OPSF members,

We are happy to announce that after careful deliberation, the OPSFA Steering Committee has decided to accept the proposal from Doshisha University, Kyoto, Japan to host OPSFA-18 from August 17-21, 2026. The organizing committee members have been proposed to include at least: Satoshi Tsujimoto (Chair, Kyoto University), Hiroshi Miki (Co-Chair, Doshisha University), Yoshitsugu Takei (Doshisha University), and Teruhisa Tsuda (Aoyama University). Presentations are expected to be held in Hardy Hall and some other lecture rooms at Doshisha University, Kyoto, Japan. The estimated registration fee is expected to be between US$300-400 and for students US$150-200. For more information about Doshisha University see the following link:

https://www.doshisha.ac.jp/en/information/imadegawa/muromachi_map/

Congratulations to the team from Doshisha University!

Best regards, OPSFA Steering Committee,
Luc Vinet, Peter Clarkson, Christoph Koutschan, Ana Loureiro and Howard Cohl

Topic #2 ——— OP - SF Net 32.2 ——— March 15, 2025

From: Jacob Stordal Christiansen (jacob_stordal.christiansen@math.lth.se)
and Henrik Laurberg Pedersen (henrikp@math.ku.dk)
Subject: Announcement: "Extremal Polynomials and Dynamical Systems" in Copenhagen, Denmark

Announcement: International Conference on "Extremal Polynomials and Dynamical Systems"

We are pleased to announce the international conference "**Extremal Polynomials and Dynamical Systems**," taking place **August 19–22, 2025**, at the historic **Carlsberg Academy** in **Copenhagen, Denmark**.

This conference aims to bring together researchers from diverse areas related to **Approximation Theory and Dynamical Systems** to create collaboration and the exchange of ideas.

The program features **10 plenary talks by leading international experts**, including:

- **Bernhard Beckermann** (University of Lille, France),
- **Jonathan Breuer** (Hebrew University of Jerusalem, Israel)
- **Xavier Buff** (University of Toulouse, France),
- **Benjamin Eichinger** (Lancaster University, UK),
- **Thomas Gauthier** (University Paris-Saclay, France),
- **Luna Lomonaco** (IMPA, Brazil),
- **Andrei Martinez-Finkelshtein** (Baylor University, USA and University of Almeria, Spain),
- **Yusuke Okuyama** (Kyoto University, Japan),
- **Fredrik Viklund** (KTH, Sweden), and
- **Saeed Zakeri** (City University of New York, USA).

For more details, visit the conference homepage:
https://www.math.ku.dk/english/calendar/events/epds/.

Scientific Committee:

- Jacob Stordal Christiansen (Lund University)
- Christian Henriksen (Technical University of Denmark)
- Henrik Laurberg Pedersen (University of Copenhagen)
- Carsten Lund Petersen (University of Copenhagen)
- Eva Uhre (Roskilde University)

We look forward to welcoming you to Copenhagen!

Topic #3 ——— OP – SF Net 32.2 ——— March 15, 2025

From: Ryan W. Matzke (ryan.w.matzke@vanderbilt.edu)
Subject: Announcement: Deadlines: "Constructive Functions 2025" in Nashville, Tennessee

Constructive Functions 2025

in conjunction with the

37th Annual Shanks Lecture

Celebrating **Ed Saff's 80th birthday**

Nashville, Tennessee
May 19–22, 2025
https://my.vanderbilt.edu/constructivefunctions2025/
constructivefunctions2025@gmail.com

We are pleased to send out the fourth announcement for the Constructive Functions 2025 conference. **If you would like to contribute a talk, register for the conference, or find hotels at a negotiated price for the conference please visit**: https://my.vanderbilt.edu/constructivefunctions2025/

Important deadlines (with links):

- **Application for Travel Support**: March 15, 2025
  https://my.vanderbilt.edu/constructivefunctions2025/registration/support-requests/
- **Abstract Submission Deadline**: April 1, 2025
  https://my.vanderbilt.edu/constructivefunctions2025/current-courses/
- **Registration Deadline**: April 1, 2025
  https://my.vanderbilt.edu/constructivefunctions2025/registration/registration/

The **37th Shanks Lecture** will be delivered by Professor Doron Lubinsky (Georgia Institute of Technology). The meeting will also provide an excellent opportunity to celebrate **Professor Ed Saff's 80th birthday**.

The prestigious Shanks Lecture Series is organized annually by the Department of Mathematics in honor of Baylis and Olivia Shanks. The late Professor Baylis Shanks was chairman of the Department from 1956 through 1969. A list of previous Shanks Conferences and Lecturers can be found here.

Students, early career researchers, women, and other minorities are especially encouraged to attend this conference. We have applied for funding from the NSF and are waiting to hear if we can offer some support for such participants.

Invited Speakers:

- **Doron Lubinsky, Shanks Lecturer**, Georgia Institute of Technology, USA
- **Peter Dragnev**, Purdue University – Fort Wayne, USA
- **Arno Kuijlaars**, KU Leuven, Belgium
- **Ana Loureiro**, University of Kent, UK
- **Andrei Martínez-Finkelshtein**, Baylor University, USA
- **Ana Matos**, Universite de Lille, France
- **Jill Pipher**, Brown University, USA
- **Ian Sloan**, University of New South Wales, Australia
- **Eitan Tadmor**, University of Maryland, USA
- **Nick Trefethen**, Harvard University, USA

Organizing Committee:

- Stephen Gardiner, University College Dublin
- Doug Hardin, Vanderbilt University
- Liudmyla Kryvonos, Vanderbilt University
- Juliette LeBlond, INRIA Sophia Antipolis Méditerranée
- Doron Lubinsky, Georgia Institute of Technology
- Ryan Matzke, Vanderbilt University
- Igor Pritsker, Oklahoma State University
- Mihai Putinar, University California Santa Barbara
- Maya Stoyanova, Sofia University
- Robert Womersley, University of New South Wales

- Maxim Yattselev, IUPUI

Scientific Committee:

- Laurent Baratchart, INRIA Sophia Antipolis Méditerranée
- Sergiy Borodachov, Towson University
- Peter Boyvalenkov, Bulgarian Academy of Sciences
- Kathy Driver, University of Cape Town
- Guillermo López Lagomasino, Universidad Carlos III de Madrid
- Xin Li, University of Central Florida
- Igor Shevchuk, Taras Shevchenko National University of Kyiv
- Nikos Stylianopoulos, University of Cyprus
- Natalia Zorii, National Academy of Sciences of Ukraine

We hope to see you in May!

Best wishes,
The Constructive Functions 2025 Organizing Committee

Topic #4 ——— OP - SF Net 32.2 ——— March 15, 2025

From: Howard Cohl (howard.cohl@nist.gov), Sarah Post (spost@hawaii.edu),
Kerstin Jordaan (jordakh@unisa.ac.za) and Tom Trogdon (trogdon@uw.edu)
Subject: Announcement: SIAG/OPSF Minisymposia at SIAM/CAIMS Annual Meetings in Montréal, Canada

We are very happy to report that thanks to the hard work of the elected officers for our activity group we have a strong showing of 6 minisymposia proposed for the upcoming Third Joint SIAM/CAIMS Annual Meetings (AN25) in Montréal. Beginning on January 1st, 2025, when their elected period started for SIAG/OPSF, Howard Cohl, Kerstin Jordaan and Tom Trogan contacted and identified organizers for the following OPSF related minisymposia. These minisymposia were all successfully submitted to SIAM prior to the short deadline of February 10, 2025 and the schedule will be available during the first week of April.

Assuming these minisymposia are accepted, when the program is posted, they will all be listed on the conference website as being sponsored by the SIAM Activity Group on OPSF.

Proposed SIAG/OPSF minisymposia:

1. **Spectral Graph Theory, Orthogonal Polynomials, and Quantum Computing**

   Organizers: Anastasiia Minenkova (University of Hartford) and Harmony (Hanmeng) Zhang (Worcester Polytechnic Institute)

   List of Speakers:

   (a) Rachel Bailey, Bentley College, USA
   Title: Orthogonal Polynomials and Perfect State Transfer

   (b) Luc Vinet and Pierre-Antoine Bernard, Université de Montréal, Canada;
   Title: A dynamical algebra of protocol-induced transformations on Dicke states

   (c) Pierre-Antoine Bernard*, Ismaël Bussière *, Roberto Floreanini† and Luc Vinet*
   *Université de Montréal, Canada; †INFN Trieste, Italy;
   Title: Currents in non-equilibrium steady states of open inhomogeneous XX-spin chains

(d) Anastasiia Minenkova, University of Hartford, West Hartford, CT, USA
Title: Early State Exclusion

(e) Christino Tamon, Clarkson University, USA
Title: State Transfer in Chiral Quantum Walks

(f) Ada Chan, York University, Canada
Title: Multiple state transfer

(g) Chris D. Godsil, University of Waterloo, Canada
Title: TBD

(h) Harmony Zhan, Worcester Polytechnic Institute, USA
Title: Simple Quantum Coins Enable Pretty Good State Transfer on Every Hypercube

(i) Vita Borovyk, University of Cincinnati, USA
Title: Distance Measures for Quantum States and Channels: Properties and Applications

(j) Nobuaki Obata, Tohoku University, Japan
Title: Partial Chebyshev Polynomials and Fan Graphs

(k) Tiju John*, Repana Devendra† and Sumesh K.‡
*University of Arizona, USA; †IIT Bombay, India; ‡Indian Institute of Technology Madras, India
Title: What Is a Gaussian Channel, and When Is It Physically Implementable Using a Multiport Interferometer?

2. **Digital Mathematical Content on the Web**

Organizers: Howard Cohl (NIST) and Edward Dunne (Mathematical Reviews)

List of Speakers:

(a) Howard Cohl, Applied and Computational Mathematics Division, NIST, Gaitherburg, MD, USA
Title: Recent and future activities of the NIST Digital Library of Mathematical Functions Project

(b) Edward Dunne, Mathematical Reviews, American Mathematical Society, Ann Arbor Michigan, USA
Title: Accessing mathematics using MathSciNet

(c) Deyan Ginev, arXiv, Cornell Tech, New York, NY, USA
Title: arXiv.org as HTML Papers – the next 20.25%

(d) Moritz Schubotz, FIZ Karlsruhe-Leibniz-Institut für Informationsinfrastruktur, Berlin, Germany
Title: Mathematical Research Data in zbMATH Open, Wikipedia, and Beyond

(e) Blaec Bejarano, CoCalc
Title: CoCalc by SageMath

(f) Jen Paulhus, Department of Mathematics and Statistics, Mount Holyoke College, South Hadley, MA, USA
Title: LMFDB: the joys and challenges of developing a mathematical database.

(g) Christelle Vincent, Department of Mathematics and Statistics, University of Vermont, Burlington, VT, USA
Title: Exploring angle ranks using the LMFDB and a brief introduction to code4math.

(h) Bonita Saunders, Applied and Computational Mathematics Division, National Institute of Standards and Technology, Gaithersburg, Maryland, USA
Title: NIST DLMF Tables Project

3. **Hypergeometric Series and Their Applications**

Organizers: Maddie Dawsey (U Texas at Tyler) and Fang-Ting Tu (Louisiana State University)

List of Speakers:

(a) Ling Long, Louisiana State University
Title: Applications of Hypergeometric Functions to Modular Forms

(b) Neelam Saikia, Indian Institute of Technology Bhubaneswar
Title: Distributions of Gaussian Hypergeometric Functions

(c) Rupam Barman, Indian Institute of Technology Guwahati
Title: p-Adic Hypergeometric Functions and Certain Weight Three Newforms

(d) David P. Roberts, University of Minnesota, Morris
Title: Hypergeometric Period Matrices

(e) Armin Straub, University of South Alabama
Title: Diagonal and Constant Term Representations of Sequences

(f) Yifeng Huang, University of Southern California
Title: RR-Type Identities from Zeta Functions over Quadratic Orders

(g) Lin Jiu, Duke Kunshan University
Title: Hankel Determinants and Jacobi Continued Fractions for q-Euler Numbers

(h) Esme Rosen, Louisiana State University
Title: Hypergeometric Functions and Modular Forms

(i) Vyacheslav Spiridonov, National Research University Higher School of Economics, Moscow and Joint Institute for Nuclear Research, Dubna, Russia
Title: A General Scheme of Hypergeometric Functions and Limiting Transitions Between Them

(j) Cameron Franc, McMaster University
Title: On densities of bounded primes for hypergeometric series

4. **Orthogonal Polynomials and Special Functions in Modern Applications**

Organizers: Peter Miller (University of Michigan) and Giorgio Young (University of Michigan)

List of Speakers:

(a) Robert Jenkins, University of Central Florida
Title: Extreme focusing events in the semiclassical scaled focusing NLS hierarchy

(b) Jonathan Stanfill, The Ohio State University
Title: Asymptotic Analysis and Special Functions and Applications to Spectral Zeta Functions

(c) Tom Trogdon, University of Washington
Title: The Ultraspherical Rectangular Collocation Method and Its Convergence

(d) Giorgio Young, University of Michigan
Title: Rational Solutions to the Modified Korteweg-De Vries Equation

5. **Special Functions with Applications in Number Theory and Combinatorics**

Organizers: Lin Jiu (Duke Kunshan University)

List of Speakers:

(a) Alexey Kuznetsov, York University
Title: Zeros of the Deformed Exponential Function

(b) Victor Moll, Tulane University
Title: The Limiting Behavior of Zeros of a Family of Polynomials Coming from a Rational Integral

(c) Nasser Saad, University of Prince Edward Island
Title: On Meixner-Pollaczek polynomials and the Sturm-Liouville Problem

(d) Karl Dilcher, Dalhousie University
Title: Orthogonal Polynomials and Hankel Determinants for Certain Bernoulli and Euler Polynomials

6. **Association scheme, orthogonal polynomials, and integrable systems**

Organizers: Luc Vinet (CRM/Ivado) and Nicolas Crampé (Université de Tours)

List of Speakers:

(a) Riley Casper, California State University, Fullerton
Title: Discrete Bispectrality and Pascal's Matrix

(b) Nicolas Crampé, Université de Tours
Title: Bispectral Bivariate Polynomials

(c) Maxim Derevyagin, University of Connecticut
Title: On indefinite orthogonal polynomials

(d) Alberto Grunbaum University of California, Berkeley
Title: The Darboux process and the ad conditions: a study case involving the Laguerre case

(e) Jacek Szmigielski, University of Saskatchewan
Title: Euler-Bernoulli beam problem and non-commutative Stieltjes's continued fractions

(f) Quentin Labriet, CRM / Université de Montréal
Title: Infinite Dimensional Representations of the Meta Hahn Algebra and Special Functions

(g) Lucia Morey, CRM / Université de Montréal
Title: Algebraic Interpretation of Discrete Families of Matrix Valued Orthogonal Polynomials

(h) Sarah Post, University of Hawaïı
Title: Multivariate Racah Polynomials and their associated algebras

(i) Franco Saliola, CRM / Université du Québec à Montréal
Title: Commutative subalgebras of symmetric groups and Hecke algebras arising from shuffling processes

(j) Paul Terwilliger, University of Wisconsin-Madison
Title: The nucleus of a Q-polynomial distance-regular graph

(k) Jan Felipe van Diejen, Instituto de Matemáticas, Universidad de Talca
Title: The Spectrum of the Finite Open XX Quantum Spin Chain with Transverse Magnetic Boundary Fields Via Orthogonal Polynomials

7. **Computation of Special Functions**

Organizers: Javier Segura and Amparo Gil (University of Cantabria)

List of Speakers:

(a) Amparo Gil, University of Cantabria, Spain
Title: Improving the Quality of Numerical Software for Distribution Functions

(b) Robert Corless, Western University & University of Waterloo, Canada
Title: Computation of Generalized Mathieu Functions

(c) Richard Slevinsky, University of Manitoba, Canada
Title: FaFast Measure Modification of Orthogonal Polynomials Via Matrices with Displacement Structure

(d) Wietse Vaes, University of Washington, USA
Title: Special Functions and the Numerical Solution of Initial-Boundary Value Problems

8. **Multivariate Approximation and Orthogonality**

   Organizers: Teresa Pérez (Universidad de Granada) and Miguel Piñar (Universidad de Granada)

   List of Speakers:

   (a) Luis Garza, Facultad de Ciencias, CUICBAS, Universidad de Colima, México
   Title: On Symmetric Multivariate Orthogonal Polynomials

   (b) Herbert Duenas-Ruiz, Universidad Nacional de Colombia, Sede Bogota
   Title: Particular Cases of Sobolev-Type Zernike Orthogonal Polynomials

   (c) Ana Foulquie-Moreno, Dep. of Mathematics, Universidade de Aveiro, Portugal
   Title: Applications of Quadratic Decomposition for Bivariate Orthogonal Polynomials

   (d) Amilcar Branquinho, Dep. of Mathematics, Universidade de Coimbra, Portugal
   Title: Lax-Type Pairs in the Theory of Bivariate Orthogonal Polynomials

   (e) Misael Marriaga, Dep. of Applied Mathematics, University Rey Juan Carlos, Madrid, Spain
   Title: Higher-Order Differential Operators Having Bivariate Orthogonal Polynomials As Eigenfunctions

   (f) Cleonice Bracciali, Dep. of Mathematics, IBILCE-UNESP, sede Sao Jose do Rio Preto, Brazil
   Title: Centrosymmetric and Reverse Matrices in Bivariate Orthogonal Polynomials

   (g) Manuel Manas, Dep. of Theoretical Physics, Universidad Complutense de Madrid, Spain
   Title: Multivariate Orthogonal Laurent Polynomials and Integrable Systems

   (h) Incoronata Notarangelo, Department of Mathematics “Giuseppe Peano”, University of Torino, Italy
   Title: Advances in Truncated Gaussian Quadrature Rules for Exponential Weights

   (i) Teresa E. Pérez, Institute of Mathematics - IMAG, University of Granada, Spain
   Title: Bivariate Bernstein-Jacobi approximants for negative parameters

   (j) Miguel A. Piñar, Dept. of Applied Mathematics, University of Granada, Spain
   Title: On Classical Generalized Bivariate Symmetric Polynomials

9. **Numerical methods in the theory of orthogonal polynomials and special functions**

   Organizers: Cade Ballew (University of Washington), Richard Mikaël Slevinsky (University of Manitoba) and James Bremer (University of Toronto)

   List of Speakers:

   (a) James Bremer, University of Toronto
   Title: Airy phase functions

   (b) Cade Ballew, University of Washington
   Title: The Akhiezer iteration and an inverse-free solver for Sylvester matrix equations

   (c) Gabriel Hamm, University of Manitoba
   Title: Fast algorithms for Sobolev orthogonal polynomials

   (d) Kirill Serkh, University of Toronto
   Title: The Approximation of Singular Functions by Series of Non-Integer Powers

Topic #5 ——— OP - SF Net 32.2 ——— March 15, 2025

From: OP-SF Net Editors
Subject: Further remembrances of **Masatoshi Noumi** (1955-2024)

Further Remembrances of Masatoshi Noumi (March 11, 1955—November 20, 2024)

Below are three remembrances of Masatoshi Noumi from four of his close colleagues:

Edwin Langmann and **Junichi Shiraishi**; **Jasper Stokman**; **Tom Koornwinder**.

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Remembrance of Masatoshi Noumi

Edwin Langmann (langmann@kth.se) and Junichi Shiraishi (shiraish@ms.u-tokyo.ac.jp)

We are lucky to belong to the group of scientists who have closely interacted and worked with Masatoshi Noumi. He was passionate about mathematics, caring, encouraging, talented, wise, reliable; in short, and outstanding scientist, human being, and role model for many of us. We shared with him a passion for beautiful formulas related to Macdonald theory and its elliptic generalization due to Ruijsenaars. One of us (JS) has worked with him since 1992. Some years later, Masatoshi-san got busy with heavy administrative duties at Kobe University. Despite of these duties, Masatoshi-san managed to remain an outstanding research leader, collecting a group of scientists around hin in regular meetings, inspiring work, helping work to get finished by his kind and encouraging way, his interest, his helpful advice and feedback.

It was always fun to go to dinner with the participants after the seminar. We liked to drink wine with our meals, and Masatoshi-san would always remind us of the famous "Mimachi's Theorem": "The number of bottles of wine tonight is the number of us plus one." We always felt that we needed to recharge our energy to complete some great mathematical theorem, so we always did just that, eating, drinking and talking a lot.

The three of us met first in person at a wonderful meeting on elliptic integrable systems at the Lorentz Center in Leiden in 2013, realizing in discussions that we shared very close scientific interests. It took us until 2019 to find a productive way to collaborate, aided by Zoom, which we learned to use as a collaboration tool during covid time. Masatoshi Noumi was guest professor in Stockholm for a year starting in August 2020 which, despite covid and with the help of Zoom, turned out very productive. We finished papers but also discussed topics which has given us work for years to come — we try to keep working on these topics (in on-going work with Martin Hallnäs), and we trust there will be future papers developing Masatoshi-san's beautiful mathematics and ideas. We are missing and remembering him, trying to continue what we learned from him.

We both are theoretical physicists by education and have both worked on topics belonging to other research communities. Both of us therefore appreciate that the research community to which Masatoshi-san belonged functions outstandingly well. It is well-grounded in good traditions, welcoming to newcomers (including us some time ago), encouraging, and not focusing on indicators of scientific success that can be measured in numbers but instead on intellectual content. We strongly believe that the atmosphere within a research community is to a large degree affected by the human qualities of its leaders. Masatoshi Noumi was a research leader with high standards in his work, who was not only very talented, but at the same time had outstanding human qualities. We think we are two of many who owe him a lot.

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Masatoshi Noumi

Jasper Stokman (J.V.Stokman@uva.nl)

Figure 1: Tom Koornwinder and Masatoshi Noumi at my Ph.D. defense in Amsterdam, June 1998.

In the spring of 1994 a concentration period on Representation Theory and q-Special Functions took place in Leiden, The Netherlands. Masatoshi Noumi was giving a mini-course about the quantum group analogue of the Borel-Weil construction of the finite-dimensional irreducible representations of $\mathrm{GL}(n,\mathbb{C})$, based on his joint paper [1] with Hirofumi Yamada and Katsuhisa Mimachi. I attended the mini-course as a master student, knowing that I would continue a couple of months later with a Ph.D. on quantum groups and q-special functions under the guidance of Tom Koornwinder. Masatoshi's patient and systematic style of presentation and his ability to clearly convey the main ideas made a big impression on me. As soon as I started as a Ph.D. student, I read their beautiful paper, which also contains the interpretation of little q-Jacobi polynomials as spherical functions on quantum odd-dimensional spheres, from front to back.

In 1992 Tom Koornwinder published a simultaneous generalisation of Macdonald polynomials and the Askey-Wilson polynomials [2], nowadays known as Koornwinder polynomials. The plan of my Ph.D. was to find similar multivariable analogs of some of the descendants of the Askey-Wilson polynomials in the q-Askey scheme, and interpret those as spherical functions on quantum homogeneous spaces. While working on the first half of the plan, Masatoshi's breakthrough paper [3] appeared in which he gave the first examples of Macdonald polynomials as spherical functions on quantum homogeneous spaces. The paper was sprinkled with beautiful new ideas and showed his mastery of all aspects of quantum groups known at that time: Drinfeld-Jimbo approach; Faddeev's approach motivated by quantum physics; and the non-commutative geometry approach by Majid. The second part of my Ph.D.-plan wouldn't have stood a chance without this paper and his followup work [4] with Mathijs Dijkhuizen and Tetsuya Sugitani realizing the Koornwinder polynomials as spherical functions on quantum complex Grassmannians. Joint with Mathijs Dijkhuizen, who stayed at that time for several years at Kobe University in the research group of Masatoshi, we extended the results from [4] to obtain a quantum group interpretation of multivariable big and little q-Jacobi polynomials.

To complete this project, I spent 10 weeks at Kobe University in 1997. Masatoshi showed kind interest in my work, but we did not have much chance to talk as he was very busy as director of the institute. But he

stayed late one evening to explain to me his results from his Japanese paper [5]. In this paper Masatoshi extended Ivan Cherednik's work on the affine Hecke algebraic interpretation of Macdonald polynomials to the setting of Koornwinder polynomials. I was eager to learn more about it, and I ended up studying the topic more closely after my Ph.D. Masatoshi and I decided that it was worthwhile to explain the Hecke algebraic perspective in full detail in the context of Askey–Wilson polynomials. The resulting joint paper [6] has recently gained new attention because of unexpected connections to quantum topology.

These were exciting times, in which the developments on quantum groups and Macdonald polynomials were taking place at a very fast pace. Masatoshi was a central figure in these developments, who inspired me and many other researchers with his work. For instance, his paper [3] is an important stepping stone in Gail Letzter's classification-free identification of Macdonald polynomials as spherical functions associated to quantum symmetric pairs. Unfortunately, Gail also passed away last year at a relatively young age [7].

Figure 2: Koornwinder explaining his math to Noumi and Mimachi in Columbus, Ohio, May 1989.

It was always a great pleasure to meet Masatoshi and to talk to him. The last time I communicated with Masatoshi was a couple of years ago, after the online conference for my 50th birthday. Masatoshi wrote to me: "There are many things I would like to talk and discuss with you. I will think of visiting you in Amsterdam, hoping the pandemic situation will be settled in some way before the next summer. I also hope we will have a chance to work together in the nearest future." I wish I could turn back time and make this happen.

⋆ ⋆ ⋆

Remembering Masatoshi Noumi

Tom Koornwinder (thkmath@xs4all.nl)

My first encounter with Noumi and Mimachi (Noumi's friend and coauthor) was at the NATO Advanced Study Institute *Orthogonal polynomials and their applications* held in Columbus, Ohio during May 22 –

Figure 3: Opdam, Koornwinder, Mimachi and Noumi in Ann Arbor, Michigan, June 1989 .

June 3, 1989. There I presented my new result [8] on the interpretation of certain Askey–Wilson polynomials as spherical functions on quantum $\mathrm{SU}(2)$. This was a tough thing for me, on which I had labored until the last moment before my lecture. Noumi and Mimachi were very interested in my result because they were hunting for something similar, but still missed some essential ingredients of a proof. Later during the conference I explained my results to them in more detail (see Figure 2). This fell on fertile ground. Soon they published far reaching extensions [9] of my result. After the conference Noumi, Mimachi, Eric Opdam and I drove to Ann Arbor, Michigan, where we attended a *Regional Conference on Combinatorics and Algebra*, June 6–10, 1989. This was a most cheerful trip (see Figure 3).

Noumi visited Amsterdam several times. In 1994 he spent a few weeks there when mathematicians from several Dutch universities, collaborating in the Stieltjes Institute, got a major grant for inviting foreign experts. Then Noumi and I also played the recorder together and we even performed a Telemann canon sonata at a music evening organized by my Faculty at the University of Amsterdam. In August 2003 he spoke at a conference in Amsterdam on the occasion of my 60^{th} birthday (see Figure 4).

My Ph.D. student Mathijs Dijkhuizen was a postdoc at Noumi's Univertsity in Kobe, Japan, and published there with Noumi on Macdonald–Koornwinder polynomials [2] as spherical functions on quantum groups [4]. Noumi published in 1995 a paper [5] in Japanese which prepared the road for Sahi's introduction [10] in 1999 of a nonsymmetric version of Macdonald–Koornwinder polynomials. For historical reasons it would be still worthwhile if an English translation of Noumi's paper could be made available.

Soon Noumi started working on Painlevé equations. His book *Painlevé equations through symmetry* (2000, in Japanese) appeared in 2004 with English translation [11]. He also did a lot of work on elliptic hypergeometric functions.

I attended a conference in March 2015 in Kyoto in honor of Noumi's 60^{th} birthday. (This will probably remain my only visit to Japan.) During the conference dinner the birthday was celebrated with a typically Japanese ceremony (see Figure 5).

Noumi spent the academic year 2020–2021 in Stockholm, during covid, and in winter he gave there on-

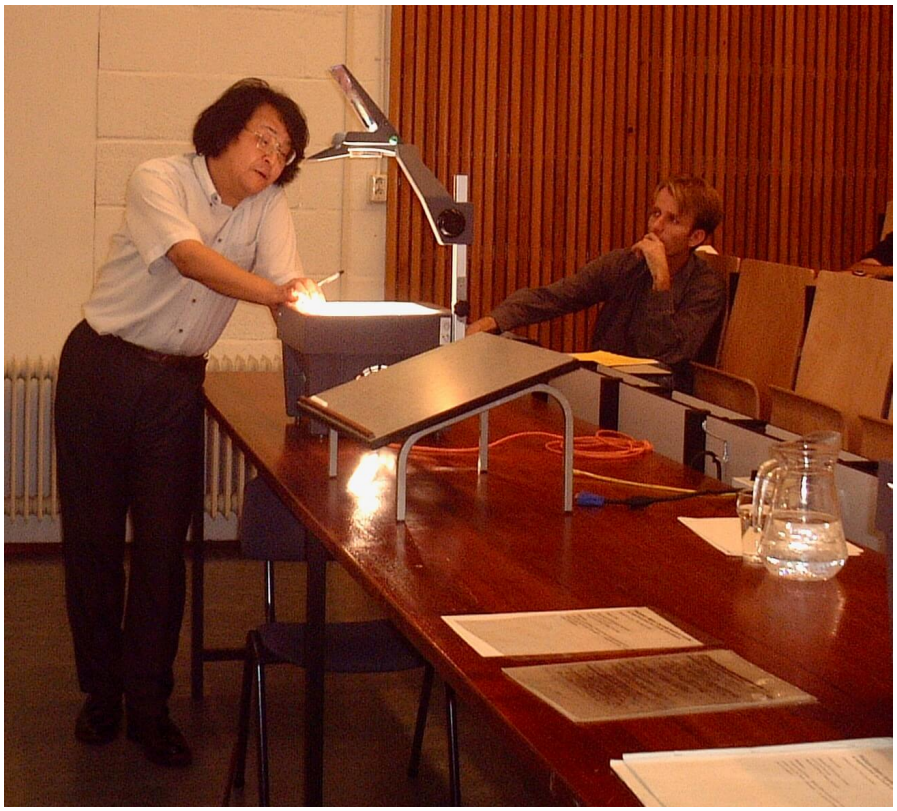

Figure 4: Noumi lecturing in Amsterdam, August 2003 with Stokman listening.

line lectures on Macdonald polynomials, which I attended. They appeared in a book published in 2023 [12].

A dear friend and powerful mathematician has passed away. We will miss him.

⋆ ⋆ ⋆

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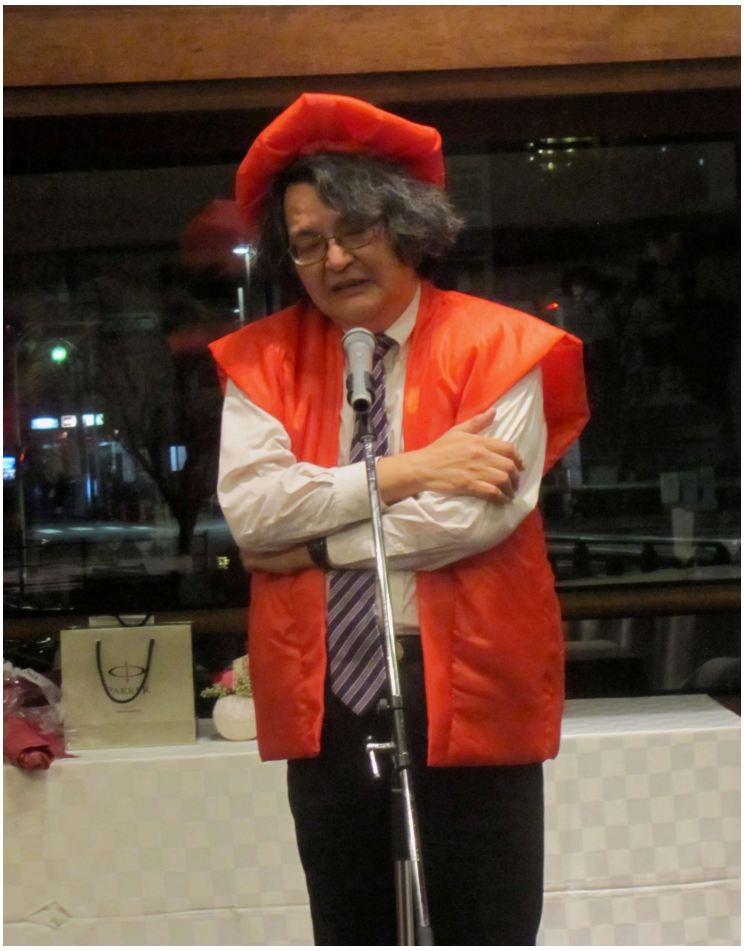

Figure 5: Noumi in his 60th birthday "chanchanko" outfit giving an after dinner speech in Kyoto, March 2015. According to Junichi Shiraishi in an email on March 3, 2025, in reference to this photo, he recalls: "at the time of Noumi's 60th birthday, Masatoshi compared his life of under 60 and over 60, to the side A and side B of a music record. Probably he wanted to recall to me the fact that some very good records have tremendously beautiful music on its B side, but remains not very much recognized among people unfortunately or fortunately. What he told me is totally correct. He continued to create and play deep music..."

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Topic #6 ——— OP - SF Net 32.2 ——— March 15, 2025

From: Howard Cohl (howard.cohl@nist.gov)
Subject: Recollections of the Printed Newsletter for the SIAM Activity Group on OPSF (1990-2002)

First a bit of history (please see Tom Koornwinder's OP-SF NET archive https://staff.fnwi.uva.nl/t.h.koornwinder/opsfnet/). OP-SF NET, the online Newsletter of SIAG/OPSF has been active since its first edition: Volume **1**, Number 1, December 22, 1993. It started as a beautifully crafted ASCII text document (you really should read Volume **1**, Number 1). Tom continued as sole editor until Volume **3**, Number 2, March 14, 1996 when Martin Muldoon joined him as co-editor. Tom's last edition as co-editor with Martin was Volume **5**, Number 6, November 15, 1998. OP-SF NET has maintained a frequency of six issues a year from the beginning.

Martin continued as sole editor until Volume **13**, Number 1, January 15, 2006, where he was joined as co-editor by Diego Dominici. OP-SF NET transitioned from ASCII to pdf format in Volume **14**, Number 3, May 15, 2007, while Martin and Diego were editors. Martin and Diego co-edited OP-SF NET until Volume **22**, Number 1, January 15, 2015. At that point, Howard Cohl and Kerstin Jordaan co-edited the online Newsletter until Volume **23**, Number 3, May 15, 2016 when Sarah Post joined as co-editor. The three of us co-edited the Newsletter until Volume **23**, Number 6, November 15, 2016, at which point Kerstin stepped down as co-editor. Sarah and I have been co-editing the online Newsletter ever since.

It should be noted that from the Fall of 1990 until October 2002, there was also a nicely formatted, printed Newsletter for SIAG/OPSF! During that time there were 34 editions of this printed Newsletter in 13 volumes.

- 1990: 1-1.
- 1991: 2-1.
- 1992: 3-1, 3-2, 3-3, 3-4.
- 1993: 4-1, 4-2, 4-3, 4-4.
- 1994: 5-1, 5-2.
- 1995: 6-1, 6-2, 6-3.
- 1996: 7-1, 7-2, 7-3.
- 1997: 8-1, 8-2, 8-3.
- 1998: 9-1, 9-2, 9-3.
- 1999: 10-1, 10-2, 10-3.
- 2000: 11-1, 11-2, 11-3.
- 2001: 12-1, 12-2, 12-3.
- 2002: 13-1.

The editors for this Newsletter:

1. George Gasper, Charles Dunkl (1-1, 2-1).
2. Eugene Tomer (3-1, ..., 5-2).
3. Wolfram Koepf (6-1, ..., 9-1).
4. Renato Álvarez Nodarse (8-3, ..., 12-3).

5. Rafael J. Yáñez (8-3, ..., 13-1).

Much appreciation to Wolfram Koepf for his assembling the online archive of scanned Newsletters! This Newsletter contains a lot of useful historical information including many contributions from Richard Askey. It's well-worth a read and scan.

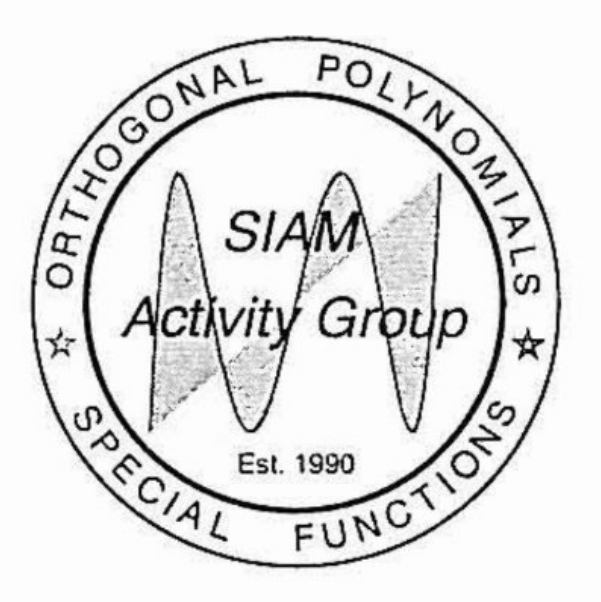

Figure 6: Eugene Tomer's design of the SIAG/OPSF logo.

According to Charles Dunkl in an email dated March 13, 2025:

> Before the newsletter came the start of the SIAM SIAG/OPSF activity group. It took thirty signatures of SIAM members to get a group organized. I circulated the petition at the NATO Advanced Study Institute "Orthogonal polynomials and their applications" held at Ohio State University (Columbus, OH) in May 1989. I chatted with Seymour Parker who was SIAM president at the time about the process (I knew him from my time as a grad student at U. Wisconsin). It was a very good meeting. Ian Macdonald gave an impressive lecture—the organizers provided a grad student to erase the boards during his lecture—to keep up with the speed of his well-prepared (!!!) lecture. I met Herbert Stahl (no longer with us, I'm sorry to say) and some other German mathematicians.
>
> I got the signatures and got going on the group. We needed officers besides me—I got George Gasper, Jet Wimp and Mourad Ismail on board. I approached Dick Askey—he politely suggested I get "younger people" for the job. Out of the blue I heard from Eugene Tomer who volunteered to produce the Newsletter. We hoped for 4-6 pages, it would be typed and then photocopied and printed by SIAM (all done by US mail). Eugene designed a logo (based on the graph of some low degree Chebyshev polynomials). [See Figure 6.] George Gasper had the idea of a problems section—as a side note, at the 1995 Workshop on "Special functions, q-series and related topics" at the Fields Institute in Toronto where George gave a series of lectures, which included homework problems for the younger people (grad students, for example) so setting problems for others is very much George's m.o. [modus operandi].
>
> I communicated with Eugene exclusively by email—except for one time I met him in person at the annual SIAM meeting in Los Angeles—Century City (I recall?). For all the time that he was editor he did a great and careful job with the Newsletter. We invented the position of "appointed editor," rather than an elected officer—with the approval of SIAM. Eventually the position passed on to someone else (sorry, I don't remember). Later I was sorry to hear

about his passing—when the American Astronomical Society asked me to write an obituary for Eugene—apparently no astronomer knew him well enough. Evidently among his interest—besides amateur radio—was astronomy. I would say that my emphases were on that he freely gave of his time and energy to support the activity group, and that he strongly wanted us to contribute to worthwhile applications of special functions in the real world. It is true for many of us academics (like me) that we are insulated from the non-university work in mathematics, and it was a privilege for me to interact with someone like Eugene Tomer.

According to George Gasper in an email dated February 12, 2025:

> While I was Secretary (1990-1992) of the SIAM Activity Group on Orthogonal Polynomials and Special Functions. I assisted Charles Dunkl (who was Chair of SIAG/OPSF) in editing the SIAG/OPSF Printed Newsletters for the Fall of 1990 (1-1, 2 pages) and 1991 (Vol. 2-1, 3 pages). The Newsletters covered reports of recent and upcoming meetings, current books of interest, editorial notes, etc.
>
> With the growth of the activity group and length of the Newsletter, I was glad that Eugene Tomer volunteered to edit the Newsletter and started editing it in July of 1992. The Fall 1992 (Vol. 3-1) Newsletter turned out to be 8 pages (in double columns) long, including a 3 page Membership Directory of 115 members. Also, since Eugene and I were both amateur radio operators (with call signs WI6X and KK9X, respectively), we enjoyed adding comments about it at the ends of our Newsletter related emails.
>
> When Eugene started editing the Newsletter he added a Problems section and requested the submission of new problems for it. My submitted problem concerning the convexity of a certain multiple of a hypergeometric series turned out be Problem 2 in the Fall 1992 (Vol. 3-1) Newsletter. Since Problem 2 hadn't been solved by 1996, Dick Askey and I submitted a solution to it, which appeared on pages 18-19 of the Oct. 1997 (Vol. 8-1) issue. Problem 19. Uniform Bounds for Shifted Jacobi Multiplier Sequences (by George Gasper and Walter Trebels), which is in the June 1998 (Vol. 8-3, pp. 11-12) Newsletter, is still unsolved.

Eugene Tomer passed away on 2 July 2007 at his home in San Francisco, California. Charles Dunkl has written an obituary for Eugene Tomer in the BAAS (Bulletin of the American Astronomical Society). In that obituary, he says about Eugene Tomer regarding his editorship of the printed SIAG/OPSF Newsletter (Bulletin of the American Astronomical Society (BAAS, Volume **41**, Issue 1, Obituary):

> ...This writer met Eugene at the 1992 Annual SIAM meeting in Los Angeles in connection with the Activity Group on Orthogonal Polynomials and Special Functions, which the writer chaired at the time. Eugene volunteered to edit the Newsletter of the group, which he did from July 1992 to July 1995. Thanks to his skills and efforts, the Newsletter became a carefully edited, professional publication. Eugene not only organized a Problems Column, attracting questions in pure and applied mathematics, but he also designed the logo for the group. He gave much time and effort to this service, in an era when copy had to be physically assembled and mailed to SIAM Headquarters. Eventually he felt he had done what he could for the Activity Group. He told me that he hoped the Group would get seriously involved with applications such as in astronomy, physics, and sciences that use special function solutions of differential equations.
>
> During Tomer's editorship, we communicated mostly by e-mail, our homes being far apart. He was a good friend to the Group and to me, as much as one can be over a separation of thousands of miles. As well, Eugene was an active amateur radio operator, much appreciated by his local amateur radio community, with call sign WI6X.

According to Wolfram Koepf in an email of January 1, 2025:

> Eugene Tomer was the first Editor of the Newsletter, and he resigned in 1995. The officers of the SIAM activity group OPSF – at that time Charles Dunkl, George Gasper, Martin Muldoon and Tom Koornwinder – asked urgently, who would be willing to continue, and I was interested

and responded positively. As a result they appointed me, and I started with issue 6-1. You can read everything about this transition in issue 6-1.

I didn't know Eugene Tomer personally, but I had email contact with him and he sent me his files. I found the editing process which was also new for me very interesting! However, I had written already several books before so the editing process was not completely new to me. For me it was clear from the beginning that I would like to do this job for three years or so, and therefore I stopped by asking for somebody to continue. I don't really remember anything about my transition to stopping being an editor of the printed Newsletter. Renato Álvarez Nodarse and Rafael J. Yáñez agreed, we did issue 8-3 together, afterwards they took over. I absolutely enjoyed my time being an Editor for the Newsletter!

According to Renato Álvarez Nodarse in an email on January 1, 2025:

> Wolfram Koepf was the editor before I was, he contacted me and suggested that I become editor. In fact I (and Rafael J. Yáñez, a colleague from Granada) edited one or two Newsletters with Koepf before we started to edit alone! I enjoyed being an editor for the Newsletter, but it was a lot of work! I recall that SIAM decided that printing and shipping was very expensive and therefore the printed version should be canceled out.

Topic #7 ——— OP - SF Net 32.2 ——— March 15, 2025

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

The following preprints related to the fields of orthogonal polynomials and special functions were posted or cross-listed to one of the subcategories of arXiv.org during January and February 2025. This list has been separated into two categories.

OP-SF Net Subscriber E-Prints

http://arxiv.org/abs/2501.01408
Quantum periods, toric degenerations and intrinsic mirror symmetry
Sam Johnston

http://arxiv.org/abs/2501.02877
Multi-indexed Orthogonal Polynomials of a Discrete Variable and Exactly Solvable Birth and Death Processes
Satoru Odake

http://arxiv.org/abs/2501.03234
Theorems and Conjectures on an Arithmetic Sum Associated with the Classical Theta Function θ_3
Bruce C. Berndt, Raghavendra N. Bhat, Jeffrey L. Meyer, Likun Xie, Alexandru Zaharescu

http://arxiv.org/abs/2501.03918
On generalized Mittag-Leffler-type functions of two variables
Anvar Hasanov, Erkinjon Karimov

http://arxiv.org/abs/2501.05696
Combinatorial identities related to degenerate Stirling numbers of the second kind
Taekyun Kim, Dae san Kim

http://arxiv.org/abs/2501.07068
Rank, two-color partitions and Mock theta function
George E. Andrews, Rahul Kumar

http://arxiv.org/abs/2501.07144
Dualities in random matrix theory
Peter J. Forrester

http://arxiv.org/abs/2501.09626
Refinements of Van Hamme's (E.2) and (F.2) supercongruences and two supercongruences by Swisher
Victor J. W. Guo, Chen Wang

http://arxiv.org/abs/2501.12197
Inequalities for an integral involving the modified Bessel function of the first kind
Robert E. Gaunt

http://arxiv.org/abs/2501.12413
The Laguerre constellation of classical orthogonal Polynomials
Roberto S. Costas-Santos

http://arxiv.org/abs/2501.12679
The multiplicative constant in asymptotics of higher-order analogues of the Tracy-Widom distribution
Dan Dai, Wen-Gao Long, Shuai-Xia Xu, Lu-Ming Yao, Lun Zhang

http://arxiv.org/abs/2501.12806
Bispectrality of the sieved Jacobi polynomials
Luc Vinet, Alexei Zhedanov

http://arxiv.org/abs/2501.13330
Hypergeometric Distributions and Joint Families of Elliptic Curves
Brian Grove, Hasan Saad

http://arxiv.org/abs/2501.15287
Some examples of orthogonal matrix polynomials satisfying odd order differential equations
Antonio J. Durán, Manuel D. De la Iglesia

http://arxiv.org/abs/2501.15294
Matrix valued orthogonal polynomials related to SU$(N+1)$, their algebras of differential operators and the corresponding curves
F. Alberto Grünbaum, Manuel D. De la Iglesia

http://arxiv.org/abs/2501.17291
Polyanalytic Hermite polynomials associated with the elliptic Ginibre model
Nizar Demni, Zouhaïr Mouayn

http://arxiv.org/abs/2501.17710
Approximation of Askey-Wilson roots
Jan Felipe van Diejen, Andrés Soledispa, Adrián Vidal

http://arxiv.org/abs/2502.00166
A unified approach to hypergeometric class functions
Jan Dereziński

http://arxiv.org/abs/2502.01833
Dirichlet Species and Arithmetic Zeta Functions
John C. Baez

http://arxiv.org/abs/2502.02419
On a function of Ramanujan twisted by a logarithm
Atul Dixit, Sumukha Sathyanarayana, N. Guru Sharan

http://arxiv.org/abs/2502.02432
Some topological genera and Jacobi forms
Tewodros Amdeberhan, Michael Griffin, Ken Ono

http://arxiv.org/abs/2502.03074
On string functions of the generalized parafermionic theories, mock theta functions, and false theta functions, II
Nikolay Borozenets, Eric T. Mortenson

http://arxiv.org/abs/2502.04275
Algebras behind the bispectrality of the Wilson rational functions and their ${}_4\varphi_3$ limits
Nicolas Crampé, Satoshi Tsujimoto, Luc Vinet, Alexei Zhedanov

http://arxiv.org/abs/2502.04962
Special Functions from a Complex Viewpoint
Henrik Laurberg Pedersen

http://arxiv.org/abs/2502.04992
The multiple Markov theorem on Angelesco sets
K. Castillo, G. Gordillo-Núñez

http://arxiv.org/abs/2502.06384
Polynomially Superintegrable Hamiltonians Separating in Cartesian Coordinates
Ian Marquette, Anthony Parr

http://arxiv.org/abs/2502.07142
Moments of characteristic polynomials for classical β ensembles
Bo-Jian Shen, Peter J. Forrester

http://arxiv.org/abs/2502.09259
Arithmetic properties of the Taylor coefficients of differentially algebraic power series
Christian Krattenthaler, Tanguy Rivoal

http://arxiv.org/abs/2502.11424
Bounds for weighted Chebyshev and residual polynomials on subsets of $\mathbb{R}$
Jacob S. Christiansen, Barry Simon, Maxim Zinchenko

http://arxiv.org/abs/2502.11988
Nice q-analogs of orthogonal polynomials with nice moments: Some simple examples
Johann Cigler

http://arxiv.org/abs/2502.12709
Dynamic generalizations of the Asymmetric Inclusion Process, Asymmetric Brownian Energy Process and their Dualities
Carel Wagenaar

http://arxiv.org/abs/2502.17616
Asymptotics of L^r extremal polynomials for $0 < r \leq \infty$ on C^{1+} Jordan regions
Benedikt Buchecker, Benjamin Eichinger, Maxim Zinchenko

http://arxiv.org/abs/2502.19096
Counting domino and lozenge tilings of reduced domains with Padé-type approximants
Christophe Charlier, Tom Claeys

http://arxiv.org/abs/2502.19309
Rogers-Ramanujan Type Identities for Rank Two Partial Nahm Sums
Liuquan Wang, Wentao Zeng

http://arxiv.org/abs/2502.19326
Matrix Bessel Biorthogonal Polynomials: A Riemann-Hilbert approach
Amílcar Branquinho, Ana Foulquié-Moreno, Assil Fradi, Manuel Mañas

http://arxiv.org/abs/2502.20813
Infinite-dimensional q-Jacobi Markov processes
Grigori Olshanski

Other Relevant OP-SF E-Prints

http://arxiv.org/abs/2501.01265
Signs of high order derivatives for the theta and Epstein zeta functions and application
Deng Kaixin, Luo Senping

http://arxiv.org/abs/2501.01364
Two characterizations of Sheffer-Dunkl sequences
Alejandro Gil Asensi, Judit Minguez Ceniceros

http://arxiv.org/abs/2501.01380
The Mordell-Tornheim zeta function: Kronecker limit type formula, Series Evaluations and Applications
Sumukha Sathyanarayana, N. Guru Sharan

http://arxiv.org/abs/2501.01419
Riemann-Hilbert problems, Fredholm determinants, explicit combinatorial expansions, and connection formulas for the general q-Painlevé III$_3$ tau functions
Pavlo Gavrylenko

http://arxiv.org/abs/2501.02145
Approximation by polynomials with only real critical points
David L. Bishop

http://arxiv.org/abs/2501.02358
Chebyshev systems and Sturm oscillation theory for discrete polynomials
D. V. Gorbachev, V. I. Ivanov, S. Yu. Tikhonov

http://arxiv.org/abs/2501.02377
Embedding integrable spin models in solvable vertex models on the square lattice
M. J. Martins

http://arxiv.org/abs/2501.03493
On Large-Space and Long-Time Asymptotic Behaviors of Kink-Soliton Gases in the Sine-Gordon Equation
Guoqiang Zhang, Weifang Weng, Zhenya Yan

http://arxiv.org/abs/2501.03623
Approximations by special values of multiple cosine and sine functions
Su Hu, Min-Soo Kim

http://arxiv.org/abs/2501.03646
Jacob's ladders and new equivalents of the Fermat-Wiles theorem connected with some cross-bred of the formulae of Hardy-Littlewood-Ingham (1926) and of Ingham (1926)
Jan Moser

http://arxiv.org/abs/2501.03774
Reduction of bielliptic hyperelliptic functions of genus 3
Takanori Ayano

http://arxiv.org/abs/2501.04703
Chebyshev polynomials involved in the Householder's method for square roots
Yann Dijoux

http://arxiv.org/abs/2501.05027
Zeta function of F-gauges and special values
Shubhodip Mondal

http://arxiv.org/abs/2501.05321
A note on the number of irrational odd zeta values, II
Li Lai

http://arxiv.org/abs/2501.05773
Simulations of multivariate gamma distributions and multifactor gamma distributions
Philippe Bernardoff, Bénédicte Puig

http://arxiv.org/abs/2501.05860
Multidimensional moment problem and Stieltjes transform
Ivan Kovalyov

http://arxiv.org/abs/2501.06195
Deformed Boson Algebras and $\mathcal{W}_{\alpha,\beta,\nu}$-Coherent States: A New Quantum Framework
Riccardo Droghei

http://arxiv.org/abs/2501.06206
${}_3F_4$ hypergeometric functions as a sum of a product of ${}_2F_3$ functions
Jack C. Straton

http://arxiv.org/abs/2501.06886
Integrals of Legendre polynomials and approximations
Abdelhamid Rehouma

http://arxiv.org/abs/2501.07241
Segal-Bargmann transforms and generalized Weyl algebras associated with the Meixner class of orthogonal polynomials
Chadaphorn Kodsueb, Eugene Lytvynov

http://arxiv.org/abs/2501.07640
Relating flat connections and polylogarithms on higher genus Riemann surfaces
Eric D'Hoker, Benjamin Enriquez, Oliver Schlotterer, Federico Zerbini

http://arxiv.org/abs/2501.08310
Variations on hypergeometric functions
Michał Zakrzewski, Henryk Żołądek

http://arxiv.org/abs/2501.10076
Accurate algorithms for Bessel matrices
Jorge Delgado, Héctor Orera, Juan Manuel Peña

http://arxiv.org/abs/2501.10109
Generalizations of two hypergeometric sums related to conjectures of Guo
Arijit Jana, Liton Karmakar

http://arxiv.org/abs/2501.10238
Stationary solutions with vacuum for a hyperbolic-parabolic chemotaxis model in dimension two
Sophia Hertrich, Tao Huang, Diego Yépez, Kun Zhao

http://arxiv.org/abs/2501.10397
Polynomial potential minimization on the unit circle
Josiah Park

http://arxiv.org/abs/2501.10545
Sesquilinear forms as eigenvectors in quasi *-algebras, with an application to ladder elements
Fabio Bagarello, Hiroshi Inoue, Salvatore Triolo

http://arxiv.org/abs/2501.10795
Poncelet pairs of a circle and parabolas from a confocal family and Painlevé VI equations
Vladimir Dragović, Mohammad Hassan Murad

http://arxiv.org/abs/2501.11033
A Littlewood-Paley approach to the Mittag-Leffler function in the frequency space and applications to nonlocal problems
Ahmed A. Abdelhakim

http://arxiv.org/abs/2501.11092
On Gegenbauer polynomials and Wronskian determinants of trigonometric functions
Minjian Yuan

http://arxiv.org/abs/2501.11303
New Proofs of the Explicit Formulas of Arakawa-Kaneko Zeta Values and Kaneko-Tsumura η- and ψ-Values
Masanobu Kaneko, Weiping Wang, Ce Xu, Jianqiang Zhao

http://arxiv.org/abs/2501.12105
The density conjecture for Juddian points for the quantum Rabi model
Rishi Kumar, Zeév Rudnick

http://arxiv.org/abs/2501.12211
Bilateral Bailey pairs and Rogers-Ramanujan type identities
Xiangxin Liu, Lisa Hui Sun

http://arxiv.org/abs/2501.14422
Mesoscopic Edge Universality of Orthogonal Polynomial Ensembles
Wenkui Liu

http://arxiv.org/abs/2501.14545
Pair Correlation of Zeros of the Riemann Zeta Function I: Proportions of Simple Zeros and Critical Zeros
Siegfred Alan C. Baluyot, Daniel Alan Goldston, Ade Irma Suriajaya, Caroline L. Turnage-Butterbaugh

http://arxiv.org/abs/2501.14714
Super-Hamiltonians for super-Macdonald polynomials
Dmitry Galakhov, Alexei Morozov, Nikita Tselousov

http://arxiv.org/abs/2501.15241
Optimal result involving the Green's function
Zakaria Boucheche

http://arxiv.org/abs/2501.15277
Characterizing the Lovasz theta function via walk generating functions
Lasse Harboe Wolff

http://arxiv.org/abs/2501.15866
On the location of the complex conjugate zeros of the partial theta function
Vladimir Petrov Kostov

http://arxiv.org/abs/2501.16478
Polynomial sequences with the same recurrence relation as Chebyshev polynomials and the minimal polynomial of $2\cos(2\pi/n)$
Mamoru Doi

http://arxiv.org/abs/2501.16746
Hard to soft edge transition for the Muttalib-Borodin ensembles with integer parameter θ
Dong Wang, Shuai-Xia Xu

http://arxiv.org/abs/2501.16779
New exponent pairs, zero density estimates, and zero additive energy estimates: a systematic approach
Terence Tao, Tim Trudgian, Andrew Yang

http://arxiv.org/abs/2501.17516
Stokes Phenomenon and Yangians
Qian Tang, Xiaomeng Xu

http://arxiv.org/abs/2501.17765
Domino Tilings, Domino Shuffling, and the Nabla Operator
Ian Cavey, Yi-Lin Lee

http://arxiv.org/abs/2501.17956
The Numerical Approximation of Caputo Fractional Derivative of Higher Orders Using A Shifted Gegenbauer Pseudospectral Method: Two-Point Boundary Value Problems of the Bagley Torvik Type Case Study
Kareem T. Elgindy

http://arxiv.org/abs/2501.18600
Periodicity and absolute zeta functions of multi-state Grover walks on cycles
Jirô Akahori, Norio Konno, Iwao Sato, Yuma Tamura

http://arxiv.org/abs/2502.00254
Even Hypergeometric Polynomials and Finite Free Commutators
Jacob Campbell, Rafael Morales, Daniel Perales

http://arxiv.org/abs/2502.00303
Representation of solutions of the one-dimensional Dirac equation in terms of Neumann series of Bessel functions
Emmanuel Roque, Sergii M. Torba

http://arxiv.org/abs/2502.00335
Asymptotics for multiple q-orthogonal polynomials from the RHP
Tomas Lasic Latimer

http://arxiv.org/abs/2502.00478
Orthogonality of spin q-Whittaker polynomials
Matteo Mucciconi

http://arxiv.org/abs/2502.00624
Expressing the difference of two Hurwitz zeta functions by a linear combination of the Gauss hypergeometric functions
Feng Qi

http://arxiv.org/abs/2502.01109
Geometric Gauss Sums and Gross-Koblitz Formulas over Function Fields
Ting-Wei Chang

http://arxiv.org/abs/2502.01288
On an unconditional GL_3 analog of Selberg's result
Qingfeng Sun, Hui Wang

http://arxiv.org/abs/2502.01363
Generalized Counting Process with Random Drift and Different Brownian Clocks
Mostafizar Khandakar, Manisha Dhillon, Kuldeep Kumar Kataria

http://arxiv.org/abs/2502.01369
On the extremal eigenvalues of Jacobi ensembles at zero temperature
Kilian Hermann, Michael Voit

http://arxiv.org/abs/2502.01415
The Fibonacci Zeta Function and Modular Forms
Eran Assaf, Chan Ieong Kuan, David Lowry-Duda, Alexander Walker

http://arxiv.org/abs/2502.01499
Refined Painlevé/gauge theory correspondence and quantum tau functions
G. Bonelli, A. Shchechkin, A. Tanzini

http://arxiv.org/abs/2502.02084
Lifespan estimate for the semilinear regular Euler-Poisson-Darboux-Tricomi equation
Yuequn Li, Fei Guo

http://arxiv.org/abs/2502.02089
Implicit integration factor method coupled with Padé approximation strategy for nonlocal Allen-Cahn equation
Yuxin Zhang, Hengfei Ding

http://arxiv.org/abs/2502.02147
On Siegel's problem and Dwork's conjecture for G-functions
Javier Fresán, Yeuk Hay Joshua Lam, Yichen Qin

http://arxiv.org/abs/2502.02273
Long-time asymptotics for the N_∞-soliton solution to the KdV equation with two types of generalized reflection coefficients
Guoqiang Zhang, Zhenya Yan

http://arxiv.org/abs/2502.02604
A novel construction of Jacobi's elliptic functions from deformed Lie algebra
Arindam Chakraborty

http://arxiv.org/abs/2502.02776
On Transformation properties of hypergeometric motives and Diophantine equations
Ariel Pacetti

http://arxiv.org/abs/2502.02819
Can one hear the shape of a crystal?
Haina Wang, Salvatore Torquato

http://arxiv.org/abs/2502.03276
High-precision numerical evaluation of Lauricella functions
M.A. Bezuglov, B.A. Kniehl, A.I. Onishchenko, O.L. Veretin

http://arxiv.org/abs/2502.03374
An explicitly solvable NLS model with discontinuous standing waves
Riccardo Adami, Filippo Boni, Takaaki Nakamura, Alice Ruighi

http://arxiv.org/abs/2502.03446
Cheap and stable quadrature on polyhedral elements
Alvise Sommariva, Marco Vianello

http://arxiv.org/abs/2502.03562
Multiplicativity of Fourier Coefficients of Maass Forms for SL($n, \mathbb{Z}$)
Dorian Goldfeld, Eric Stade, Michael Woodbury

http://arxiv.org/abs/2502.03842
A note on order estimates of the q-analogue of the Riemann zeta function
Hideki Murahara, Tomokazu Onozuka

http://arxiv.org/abs/2502.03880
Uniqueness and explicit form of linear Hermite-Chebyshev approximations
A. P. Starovoitov, I. V. Kruglikov

http://arxiv.org/abs/2502.04118
Maximum Likelihood Estimation of the Parameters of Matrix Variate Symmetric Laplace Distribution
Pooja Yadav, Tanuja Srivastava

http://arxiv.org/abs/2502.04150
How large are the gaps in phase space?
Michael Speckbacher

http://arxiv.org/abs/2502.04608
Algebraic cycles and values of Green's functions I- Products of Elliptic Curves
Ramesh Sreekantan (with an appendix by Kannappan Sampath)

http://arxiv.org/abs/2502.04731
Congruence properties of prime sums and Bernoulli polynomials
Jean-Christophe Pain

http://arxiv.org/abs/2502.05022
On a suspension formula for Denef-Loeser zeta functions
E. Artal Bartolo, P. D. González Pérez, M. González Villa, E. León-Cardenal

http://arxiv.org/abs/2502.05106
Fourier optimization and pair correlation problems
Mithun Kumar Das, Tolibjon Ismoilov, Antonio Pedro Ramos

http://arxiv.org/abs/2502.05134
Information-Theoretic Guarantees for Recovering Low-Rank Tensors from Symmetric Rank-One Measurements
Eren C. Kızıldağ

http://arxiv.org/abs/2502.05366
An effective estimation of multivariate density functions using extended-beta kernels with Bayesian adaptive bandwidths
Sobom M. Somé, Célestin C. Kokonendji, Francial G.B. Libengué Dobélé-Kpoka

http://arxiv.org/abs/2502.05455
Exactly solvable multicomponent spinless fermions
Ryu Sasaki

http://arxiv.org/abs/2502.05507
Unfitted boundary algebraic equation method based on difference potentials and lattice Green's function in 3D
Qing Xia

http://arxiv.org/abs/2502.05861
Some characterizations of weak left braces
Shoufeng Wang

http://arxiv.org/abs/2502.05886
An estimate for β-Hermite ensembles via the zeros of Hermite polynomials
Michael Voit

http://arxiv.org/abs/2502.06202
On the quasi-uniformity properties of quasi-Monte Carlo lattice point sets and sequences
Josef Dick, Takashi Goda, Gerhard Larcher, Friedrich Pillichshammer, Kosuke Suzuki

http://arxiv.org/abs/2502.06449
Denominator identity for the affine Lie superalgebra $\widehat{\mathfrak{spo}}(2m, 2m+1)$ and indefinite theta functions
Toshiki Matsusaka, Miyu Suzuki

http://arxiv.org/abs/2502.06506
Certain Weighted L^p-improving estimates for the totally-geodesic k-plane transform on simply connected spaces of constant curvature
Aniruddha Deshmukh, Ashisha Kumar

http://arxiv.org/abs/2502.08305
On additive convolution sum of arithmetic functions and related questions
Bikram Misra, Biswajyoti Saha, Anubhav Sharma

http://arxiv.org/abs/2502.08760
Modular Forms and Certain ${}_2F_1(1)$ Hypergeometric Series
Esme Rosen

http://arxiv.org/abs/2502.09072
Noncommutative chromatic quasi-symmetric functions, Macdonald polynomials, and the Yang-Baxter equation
Jean-Christophe Novelli, Jean-Yves Thibon

http://arxiv.org/abs/2502.09852
On the mean values of the Barnes multiple zeta function
Takashi Miyagawa, Hideki Murahara

http://arxiv.org/abs/2502.10483
A class of positive Fox H-functions
Filippo Giraldi

http://arxiv.org/abs/2502.10885
A series of definite integrals involving upper incomplete Gamma functions
Matyas Barczy, István Mező

http://arxiv.org/abs/2502.10965
Higher Rank Macdonald Polynomials
Milo Bechtloff Weising

http://arxiv.org/abs/2502.11815
A purely analytic derivation of Bonnet surfaces
Robert Conte, A. Michel Grundland

http://arxiv.org/abs/2502.11852
Algebraic Independence of an Airy Function, Its Derivative, and an Antiderivative
Folkmar Bornemann

http://arxiv.org/abs/2502.11914
Positive Biorthogonal Curvature on $S^2 \times T^2$: An open problem no more?
Alexander Pigazzini

http://arxiv.org/abs/2502.12142
pylevin: efficient numerical integration of integrals containing up to three Bessel functions
Robert Reischke

http://arxiv.org/abs/2502.12268
Friedman-Ramanujan functions in random hyperbolic geometry and application to spectral gaps II
Nalini Anantharaman, Laura Monk

http://arxiv.org/abs/2502.12410
Nonlinear wave solution to a coupled mKdV equations with variable coefficients
Wenjuan Wu

http://arxiv.org/abs/2502.12891
Network visualisations related to special functions based on the Scopus data since 1940
Rushan Ziatdinov

http://arxiv.org/abs/2502.13098
Discrete N-particle systems at high temperature through Jack generating functions
Cesar Cuenca, Maciej Dołęga

http://arxiv.org/abs/2502.13673
Pseudo-involutions in the Riordan group and Chebyshev polynomials
Alexander Burstein, Louis W. Shapiro

http://arxiv.org/abs/2502.13937
Vertex functions of type D Nakajima quiver varieties
Hunter Dinkins, Jiwu Jang

http://arxiv.org/abs/2502.14295
Fusion rules and structure constants of E-series minimal models
Rongvoram Nivesvivat, Sylvain Ribault

http://arxiv.org/abs/2502.14390
Hardy-Littlewood maximal, generalized Bessel-Riesz and generalized fractional integral operators in generalized Morrey and BMO_{φ} spaces associated with Dunkl operator on the real line
Sumit Parashar, Saswata Adhikari

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Fully spectral scheme for the linear BGK equation on the whole space
Bastien Grosse

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Approximate roots
Patrick Popescu-Pampu

http://arxiv.org/abs/2502.14589
Explicit adaptive time stepping for the Cahn-Hilliard equation by exponential Krylov subspace and Chebyshev polynomial methods
Mike A. Botchev

http://arxiv.org/abs/2502.14871
Accurate analytic approximation for a fractional differential equation with a modified Bessel function term
Byron Droguett, Pablo Martin, Eduardo Rojas, Jorge Olivares

http://arxiv.org/abs/2502.14876
Definite integrals involving Bessel functions expressed as a series of special functions
Robert Reynolds

http://arxiv.org/abs/2502.15103
Global branching of solutions to ODEs and integrability
Rod Halburd

http://arxiv.org/abs/2502.15173
Mixed Berndt-Type Integrals and Generalized Barnes Multiple Zeta Functions
Jianing Zhou

http://arxiv.org/abs/2502.15207
Sign changes in Fourier coefficients of the symmetric power L-functions on sums of two squares
Amrinder Kaur

http://arxiv.org/abs/2502.15249
Three-parameter generalizations of formulas due to Guillera
John M. Campbell

http://arxiv.org/abs/2502.15326
Feynman integrals, elliptic integrals and two-parameter K3 surfaces
Claude Duhr, Sara Maggio

http://arxiv.org/abs/2502.15364
Universality of the zeta function in short intervals
Yoonbok Lee, Łukasz Pańkowski

http://arxiv.org/abs/2502.15627
Massive vector field perturbations in the Schwarzschild spacetime from supersymmetric gauge theory
Xian-Hui Ge, Masataka Matsumoto, Kilar Zhang

http://arxiv.org/abs/2502.15852
On some properties of special functions involving k-gamma and k-digamma functions
Li Yin, Jumei Zhang

http://arxiv.org/abs/2502.15892
Sharp Estimates for Large N Weingarten Functions
Ron Nissim

http://arxiv.org/abs/2502.15966
Sums of Powers of Sine and Generalized Bernoulli Polynomials
Leon D. Fairbanks

http://arxiv.org/abs/2502.16015
On the computation of the cumulative distribution function of the Normal Inverse Gaussian distribution
Guillermo Navas-Palencia

http://arxiv.org/abs/2502.16067
The shifted convolution problem in function fields
Alexandra Florea, Matilde Lalín, Amita Malik, Anurag Sahay

http://arxiv.org/abs/2502.16070
Structure of operator algebras for matrix orthogonal polynomials
Ignacio Bono Parisi, Inés Pacharoni

http://arxiv.org/abs/2502.16393
Inverse scattering transform for the defocusing local-and-nonlocal nonlinear Schrödinger equation with non-zero boundary conditions
Chuanxin Xu, Tao Xu, Min Li

http://arxiv.org/abs/2502.16635
Riemann-Hilbert problems for bi-axially symmetric null-solutions to iterated perturbed Dirac equations in $\mathbb{R}^n$
Dian Zuo, Min Ku, Fuli He

http://arxiv.org/abs/2502.16929
On the functional Minkowski problem
Tomer Falah, Liran Rotem

http://arxiv.org/abs/2502.17008
Expression of special stretched $9j$ coefficients in terms of ${}_5F_4$ hypergeometric series
Jean-Christophe Pain

http://arxiv.org/abs/2502.17117
An Alternative Generating Function for k-Regular Partitions
Kağan Kurşungöz

http://arxiv.org/abs/2502.17656
High-Q, size-independent, and reconfigurable optical antennas via zero-index material dispersion engineering
Prasad P. Iyer, Mihir Pendharkar, Anchal Agrawal, Humberto Foronda, Mike Iza, Umesh K. Mishra, Shuji Nakamura, Steven DenBaars, Stacia Keller, Chris Palmstrøm, Jon A. Schuller

http://arxiv.org/abs/2502.17884
The fractional Riesz transform and their commutator in Dunkl setting
Yanping Chen, Xueting Han, Liangchuan Wu

http://arxiv.org/abs/2502.18896
A notion of fractality for a class of states and noncommutative relative distance zeta functional
Yat Tin Chow

http://arxiv.org/abs/2502.18921
Calogero-Sutherland-type quantum systems, generalized hypergeometric functions and superintegrability for integral chain
Fan Liu, Rui Wang, Jie Yang, Wei-Zhong Zhao

http://arxiv.org/abs/2502.19084
On the surjectivity of $\mathfrak{p}$-adic Galois representations attached to Drinfeld modules of rank 2
Narasimha Kumar, Dwipanjana Shit

http://arxiv.org/abs/2502.19232
Quantum spherical functions of type χ as Macdonald-Koornwinder polynomials
Stein Meereboer

http://arxiv.org/abs/2502.19408
Enumerative Geometry of Quantum Periods
Tim Gräfnitz, Helge Ruddat, Eric Zaslow, Benjamin Zhou

http://arxiv.org/abs/2502.20109
New q-identities Via q-Derivative of Basic Hypergeometric Series with Respect to Parameters
Ronald Orozco López

http://arxiv.org/abs/2502.20302
Finite Fourier series. The class of trigonometric splines
Volodymyr Denysiuk, Lydmila Rybachuk

http://arxiv.org/abs/2502.20644
Recent advances about the rigorous integration of parabolic PDEs via fully spectral Fourier-Chebyshev expansions
Matthieu Cadiot, Jean-Philippe Lessard

http://arxiv.org/abs/2502.20910
On Diophantine properties for values of Dedekind zeta functions
Jerson Caro, Fabien Pazuki, Riccardo Pengo

Topic #8 ——— OP - SF Net 32.2 ——— March 15, 2025

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 32.3 should be sent by May 1, 2025.

OP-SF NET is the electronic newsletter of the SIAM Activity Group on Special Functions and Orthogonal Polynomials (SIAG/OPSF). We disseminate your contributions on anything of interest to the special functions and orthogonal polynomials community. This includes announcements of conferences, forthcoming books, new software, electronic archives, research questions, and job openings as well as news about new appointments, promotions, research visitors, awards and prizes. OP-SF Net is transmitted periodically through a post to OP-SF Talk which is currently managed and moderated by Howard Cohl (howard.cohl@nist.gov). Anyone wishing to be included in the mailing list (SIAG/OPSF members and non-members alike) should send an email expressing interest to him. Bonita Saunders also posts the Newsletter through SIAM Engage (SIAG/OPSF) which is received by all SIAG/OPSF members.

OP-SF Talk is a listserv associated with SIAG/OPSF which facilitates communication among members, non-members and friends of the Activity Group. To post an item to the listserv,
send e-mail to howard.cohl@nist.gov.

WWW home page of this Activity Group:
http://math.nist.gov/opsf
Information on joining SIAM and this activity group: service@siam.org

The elected Officers of the Activity Group (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

Topic #9 ——— OP - SF Net 32.2 ——— March 15, 2025

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

"The four parameter family of Askey-Wilson polynomials has played an important and central role in the theory of basic hypergeometric orthogonal polynomials. In fact, up to date they seem to be the most general family of basic hypergeometric orthogonal polynomials which satisfy the additional requirement that they are joint eigenfunctions of a second-order q-difference operator. We use the link between the Askey–Wilson polynomials and the most general non-reduced affine root system of rank one to derive in this paper the basic properties of the Askey-Wilson polynomials (and more!) from the algebraic structure of the associated (double) affine Hecke algebra."

Masatoshi Noumi (1955-2024), *Askey-Wilson polynomials: An affine Hecke algebraic approach*, Masatoshi Noumi and Jasper V. Stokman, Advances in the Theory of Special Functions and Orthogonal Polynomials, Nova Science Publishers, Inc., Hauppauge, NY, 2004, Pages 111-144.