

# OP-SF NET – Volume 25, Number 4 – July 15, 2018

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

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

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Please send contributions to the OP-SF Net editors.

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**Calendar of Events:**

**July 25-August 15, 2018**

Summer Research Institute on  $q$ -Series

Nankai University, Tianjin, P. R. China

<http://www.combinatorics.net/q2018/>

<https://www.dk-compmath.jku.at/events/summer-research-institute-on-q-series>

**August 14-17, 2018**

International Conference on Orthogonal Polynomials and Holomorphic Dynamics (opds2018)

[Carlsberg Academy](#), Copenhagen, Denmark

<http://www.math.ku.dk/~henrikp/opds2018>

**September 2-15, 2018**

Complex Differential and Difference Equations

Banach Center, Będlewo, Poland

<https://www.impan.pl/en/activities/banach-center/conferences/18-cdde>

**October 5-12, 2018**

AIMS-Volkswagen Stiftung Workshop on Introduction to Orthogonal Polynomials and Applications, [Hotel Prince de Galles](#), Douala/Limbe, Cameroon

<http://www.aims-volkswagen-workshops.org/workshop-information.html>

**October 26–29, 2018**

The Mediterranean International Conference of Pure and Applied Mathematics and Related Areas, Dedicated to Professor Gradimir V. Milovanovic on the occasion of his 70<sup>th</sup> Anniversary, Antalya, Turkey  
<http://micopam2018.akdeniz.edu.tr/information>

**November 11–17, 2018**

Symmetries and Integrability of Difference Equations (SIDE13:2018)  
Fukuoka, Japan  
<http://side13conference.net>

**December 11–14, 2018**

Second Joint Meeting Spain–Brazil in Mathematics,  
Special session on Special Functions and Approximation Theory  
Cadiz, Spain  
<http://spabrazmathcadiz18.uca.es/web/Congreso>

**June 16–20, 2019**

Elliptic integrable systems, special functions and quantum field theory  
Nordic Institute for Theoretical Physics (NORDITA), Stockholm, Sweden  
<http://www.nordita.org/elliptic2019>

**July 22–26, 2019**

International Symposium on Orthogonal Polynomials, Special Functions & Applications (OPSFA–15)  
RISC, Johannes Kepler University, Linz, Austria  
<http://www.risc.jku.at/conferences/opsfa2019/>

**September 14–15, 2019**

AMS Fall Central Sectional Meeting  
Special Session on “Special Functions and Orthogonal Polynomials”  
University of Wisconsin–Madison, Madison, Wisconsin, USA  
[http://www.ams.org/meetings/sectional/2267\\_program.html](http://www.ams.org/meetings/sectional/2267_program.html)

Topic #1 ——— OP – SF Net 25.4 ——— July 15, 2018

From: Walter Van Assche ([walter.vanassche@kuleuven.be](mailto:walter.vanassche@kuleuven.be))  
Subject: Second Call for Nominations – Gábor Szegő Prize

Second Call for Nominations: Gábor Szegő Prize  
Nomination Deadline: October 15, 2018

Please visit the following [link](#) at SIAM to learn more about the Gábor Szegő Prize.

We are now accepting nominations for the Gábor Szegő Prize. The SIAM Activity Group on Orthogonal Polynomials and Special Functions (SIAG/OPSF) awards the Gábor Szegő Prize every two years to one individual in their early career for outstanding research contributions in the area of orthogonal polynomials and special functions.

## Eligibility Criteria:

The candidate must have no more than 10 years (full time equivalent) of involvement in mathematics since receiving their PhD at the award date, allowing for breaks in continuity. The prize selection committee can make exceptions, if in their opinion the candidate is at an equivalent stage in their career.

## Selection Committee:

- Walter Van Assche, Chair, KU Leuven, Belgium
- David Gómez-Ullate, Universidad Complutense De Madrid, Spain
- Andrei Martínez-Finkelshtein, Baylor University, Texas, USA
- Sarah Post, University of Hawai'i at Mānoa, Hawaii, USA
- Bonita Saunders, National Institute of Standards and Technology, Maryland, USA

The candidate's work must contain significant research contributions in the area of orthogonal polynomials and special functions. One key paper must be cited as evidencing the contribution though a body of papers may be discussed in the nomination. The qualifying paper must have been published in English in a peer-reviewed journal.

For the 2019 award, the candidate must have received their PhD no earlier than January 1, 2009.

## Required Materials:

- Letter of nomination signed by two current members of the SIAG/OPSF;
- Candidate's CV; and
- Bibliographic citation for candidate's key contributing paper.

Topic #2 ——— OP – SF Net 25.4 ——— July 15, 2018

From: Hjalmar Rosengren ([hjalmar@chalmers.se](mailto:hjalmar@chalmers.se))

Subject: Announcement: Elliptic integrable systems in NORDITA, Stockholm, Sweden

[Elliptic integrable systems, special functions and quantum field theory](#)

NORDITA, Stockholm, Sweden

June 16–20, 2019

In recent years there have been exciting new developments at the interface between elliptic integrable systems, special functions and quantum field theory. The aim of this workshop is to obtain a better understanding of the emerging links between these topics and to help bring out further unexpected connections in the future. The workshop is the continuation of a series (Kyoto 2004, Bonn 2008, Leiden 2013, Vienna 2017). The main themes of the meeting are: elliptic integrable systems, elliptic hypergeometric functions, elliptic and classical Painlevé equations, new special functions emerging from quantum field theory.

## Invited speakers include:

Oleg Chalykh, Leeds University  
Oleg Lisovyy, LMPT, Tours  
Marta Mazzocco, University of Birmingham

Nobutaka Nakazono, Aoyama Gakuin University, Tokyo  
Nikita Nekrasov, SCGP, Stony Brook (to be confirmed)  
Elli Pomoni, Universität Hamburg  
Eric Rains, Caltech  
Vyacheslav Spiridonov, JINR, Dubna  
Alexander Varchenko, University of North Carolina  
Maxim Zabzine, Uppsala University

**Scientific Committee:**

Edwin Langmann, KTH, Stockholm  
Masatoshi Noumi, Kobe University  
Hjalmar Rosengren, Chalmers University, Gothenburg  
Simon Ruijsenaars, Leeds University  
Vyacheslav Spiridonov, JINR, Dubna  
Ole Warnaar, University of Queensland

**Organizing Committee:**

Martin Hallnäs, Chalmers University, Gothenburg  
Edwin Langmann, KTH, Stockholm  
Hjalmar Rosengren, Chalmers University, Gothenburg

For more information, please visit the conference homepage:  
<http://www.nordita.org/elliptic2019>.

Topic #3 ——— OP – SF Net 25.4 ——— July 15, 2018

From: Sarah Post ([spost@hawaii.edu](mailto:spost@hawaii.edu))

Subject: Announcement: Special Session in Central AMS Sectional Meeting, Fall 2019

[AMS Fall Central Sectional Meeting](#),

[Special Session on “Special Functions and Orthogonal Polynomials”](#)

University of Wisconsin–Madison, Madison, Wisconsin, USA

September 14–15, 2019

A special session on “Special Functions and Orthogonal Polynomials” will be held during the Fall 2019 Midwest Sectional Meeting September 14–15, 2019 at the University of Wisconsin–Madison. Topic of the session includes aspects of special functions and orthogonal polynomials related to representation theory, Hopf algebras, algebraic combinatorics, integrable systems, superintegrability and supersymmetry.

The AMS offers travel grants for current full time doctoral students at North American universities. Information for these grants is available [here](#). The deadlines for the Fall 2019 sectional meetings will be posted later, but can be found [here](#).

For more information, please contact one of the session organizers:

Paul Terwilliger ([terwilli@math.wisc.edu](mailto:terwilli@math.wisc.edu)),

Sarah Post ([spost@hawaii.edu](mailto:spost@hawaii.edu)).

## Topic #4 ——— OP – SF Net 25.4 ——— July 15, 2018

From: Grzegorz Świdorski ([gswider@math.uni.wroc.pl](mailto:gswider@math.uni.wroc.pl))  
Subject: Conference Report: OPSFA Summer School, OPSF-S8

From July 25–29, 2018, the Higher School of Sciences & Technology of Hammam–Sousse at the Sousse University in Sousse, Tunisia, hosted the OPSFA Summer School, [OPSF-S8](#), on Orthogonal Polynomials and Special Functions.

The summer school was attended by early career researchers including PhD students, postdoctoral researchers, and assistant professors. The total number of participants (excluding the Lecturers) was 61. The most numerous group came from Tunisia (52 of them). The rest of participants came from Algeria (3 of them) and from Belgium, Morocco, the Netherlands, Poland, Saudi Arabia and Spain (one participant from each of these countries).

The school offered six series of lectures on combinatorics of orthogonal polynomials (Jiang Zeng), polynomials sets (Youssèf Ben Cheikh), applications of computer algebra to orthogonal polynomials and special functions (Wolfram Koepf), applications of spectral theory to  $q$ -special functions and basic hypergeometric series (Erik Koelink), connections between recurrence coefficients of orthogonal polynomials and Painlevé equations (Walter Van Assche) and difference equations for orthogonal polynomials on nonuniform lattices (Mama Foupouagnigni).

The lectures were well-presented and sometimes were quite challenging. The presentations and additional materials were delivered online to the participants, which can be very useful for further study of the topic. Moreover, the lecturers were prompt to answer questions outside classes, which was useful to better understand the material. Some open problems were presented, which can stimulate the research of the participants.

The whole event took place in the Tej Marhaba 4-star hotel in the city centre of Sousse. The lectures, coffee breaks and meals were located there, which was convenient. On the Wednesday afternoon, an excursion to the archaeological museum of Sousse was organised.

To sum up, I think that the event was a good occasion to learn a little bit of a wide range of topics connected to orthogonal polynomials. Some of the covered topics will probably be useful for my current research, and perhaps the other topics will be helpful in the future.

## Topic #5 ——— OP – SF Net 25.4 ——— July 15, 2018

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 2018. This list has been separated into two categories.

## OP-SF Net Subscriber E-Prints

<http://arxiv.org/abs/1805.00544>

A hypergeometric version of the modularity of rigid Calabi-Yau manifolds  
Wadim Zudilin

<http://arxiv.org/abs/1805.01462>

Monotonicity Properties and functional inequalities for the Volterra and incomplete Volterra functions  
Khaled Mehrez, Sergei M. Sitnik

<http://arxiv.org/abs/1805.01748>

Critical measures for vector energy: asymptotics of non-diagonal multiple orthogonal polynomials for a cubic weight  
Andrei Martínez-Finkelshtein, Guilherme Silva

<http://arxiv.org/abs/1805.02195>

Mixed type Hermite-Padé approximation inspired by the Degasperis-Procesi equation  
G. López Lagomasino, S. Medina Peralta, J. Szmigielski

<http://arxiv.org/abs/1805.02467>

Some supercongruences of arbitrary length  
Frits Beukers, Eric Delaygue

<http://arxiv.org/abs/1805.02781>

Applications of a New Formula for OPUC with Periodic Verblunsky Coefficients  
Brian Simanek

<http://arxiv.org/abs/1805.02863>

Fields of definition of finite hypergeometric functions  
Frits Beukers

<http://arxiv.org/abs/1805.03051>

Lévy processes with respect to the index Whittaker convolution  
Rúben Sousa, Manuel Guerra, Semyon Yakubovich

<http://arxiv.org/abs/1805.03548>

CM Evaluations of the Goswami-Sun Series  
Madeline Locus Dawsey, Ken Ono

<http://arxiv.org/abs/1805.04711>

Diagonals of rational functions, pullbacked  ${}_2F_1$  hypergeometric functions and modular forms (unabridged version)  
Y. Abdelaziz, S. Boukraa, C. Koutschan, J-M. Maillard

<http://arxiv.org/abs/1805.06077>

Increasing Consecutive Patterns in Words  
Mingjia Yang, Doron Zeilberger

<http://arxiv.org/abs/1805.06925>

Applications of integral transforms composition method (ITCM) to wave-type singular differential equations and index shift transmutations  
Ahmed Fitouhi, Inès Jebabli, Elina L. Shishkina, Sergei M. Sitnik

<http://arxiv.org/abs/1805.07153>

Bound states of a short-range potential with inverse cube singularity

A. D. Alhaidari

<http://arxiv.org/abs/1805.08830>

A note on Stein's method on the third and fourth Wiener chaoses

Robert E. Gaunt

<http://arxiv.org/abs/1805.08945>

Gamma expansions of  $q$ -Narayana polynomials, pattern avoidance and the  $(-1)$ -phenomenon  
Shishuo Fu, Dazhao Tang, Bin Han, Jiang Zeng

<http://arxiv.org/abs/1805.08954>

Quasi-Orthogonality of Some Hypergeometric and  $q$ -Hypergeometric Polynomials

Daniel D. Tcheutia, Alta S. Jooste, Wolfram Koepf

<http://arxiv.org/abs/1805.09057>

A Simple Re-Derivation of Onsager's Solution of the 2D Ising Model using Experimental Mathematics

Manuel Kauers, Doron Zeilberger

<http://arxiv.org/abs/1805.09677>

On certain  $q$ -trigonometric identities of Gosper

Bing He, Ruiming Zhang

<http://arxiv.org/abs/1805.10149>

On a generalization of the Rogers generating function

Howard S. Cohl, Roberto S. Costas-Santos, Tanay Wakhare

<http://arxiv.org/abs/1805.10569>

Settling some sum suppositions

Tanay Wakhare, Christophe Vignat

<http://arxiv.org/abs/1805.10945>

Voros Coefficients for the Hypergeometric Differential Equations and Eynard-Orantin's Topological Recursion

Kohei Iwaki, Tatsuya Koike, Yumiko Takei

<http://arxiv.org/abs/1805.11540>

Generalized Volterra functions, its integral representations and applications to the Mathieu-type series

Khaled Mehrez, Sergei M. Sitnik

<http://arxiv.org/abs/1806.00032>

On multiple  $\Delta_\omega$ -Appell polynomials

P. Njionou Sadjang, S. Mboutngam

<http://arxiv.org/abs/1806.00208>

Degenerate Miller-Paris transformations

Dmitrii B. Karp, Elena G. Prilepkina

<http://arxiv.org/abs/1806.00524>

Inequalities for integrals involving modified Bessel functions  
Robert E. Gaunt

<http://arxiv.org/abs/1806.00545>

Extreme Superposition: Rogue Waves of Infinite Order and the Painlevé–III Hierarchy  
Deniz Bilman, Liming Ling, Peter D. Miller

<http://arxiv.org/abs/1806.01153>

Bilateral identities of the Rogers–Ramanujan type  
Michael J. Schlosser

<http://arxiv.org/abs/1806.02232>

Complementary Romanovski–Routh polynomials: From orthogonal polynomials on the unit circle to Coulomb wave functions  
A. Martínez–Finkelshtein, L. L. Silva Ribeiro, A. Sri Ranga, M. Tyaglov

<http://arxiv.org/abs/1806.02656>

Little and Big  $q$ –Jacobi Polynomials and the Askey–Wilson algebra  
Pascal Baseilhac, Xavier Martin, Luc Vinet, Alexei Zhedanov

<http://arxiv.org/abs/1806.02680>

An Experimental Mathematics Approach to the Area Statistic of Parking Functions  
Yukun Yao, Doron Zeilberger

<http://arxiv.org/abs/1806.02914>

The reciprocal Mahler ensembles of random polynomials  
Christopher D. Sinclair, Maxim L. Yattselev

<http://arxiv.org/abs/1806.02962>

Electrostatic problems with a rational constraint and degenerate Lamé equations  
Dimitar K. Dimitrov, Boris Shapiro

<http://arxiv.org/abs/1806.03217>

Peak positions of strongly unimodal sequences  
Kathrin Bringmann, Chris Jennings–Shaffer, Karl Mahlburg, Robert Rhoades

<http://arxiv.org/abs/1806.03289>

Hyperelliptic integrals modulo  $p$  and Cartier–Manin matrices  
Alexander Varchenko

<http://arxiv.org/abs/1806.03434>

Extensions of Karlsson–Minton summation theorem and some consequences of the first Miller–Paris transformation  
Dmitrii B. Karp, Elena G. Prilepkina

<http://arxiv.org/abs/1806.04424>

Partition implications of a new three parameter  $q$ –series identity  
Atul Dixit, Bibekananda Maji

<http://arxiv.org/abs/1806.06199>

A Combinatorial Method for Computing Characteristic Polynomials of Starlike Hypergraphs  
Yan–Hong Bao, Yi–Zheng Fan, Yi Wang, Ming Zhu



<http://arxiv.org/abs/1806.06549>

A numerical method for oscillatory integrals with coalescing saddle points  
Daan Huybrechs, Arno B. J. Kuijlaars, Nele Lejon

<http://arxiv.org/abs/1806.06849>

General  $N^{\text{th}}$ -order superintegrable systems separating in polar coordinates  
A. M. Escobar-Ruiz, P. Winternitz, I. Yurdusen

<http://arxiv.org/abs/1806.07502>

Time-dependent polynomials with one double root, and related new solvable systems of nonlinear evolution equations  
Oksana Bihun, Francesco Calogero

<http://arxiv.org/abs/1806.07960>

Series solutions of Heun-type equation in terms of orthogonal polynomials  
A. D. Alhaidari

<http://arxiv.org/abs/1806.07962>

Generalizations of Russell-style integrals  
Mark W. Coffey

<http://arxiv.org/abs/1806.08927>

Hankel determinants and shifted periodic continued fractions  
Ying Wang, Guoce Xin, Meimei Zhai

<http://arxiv.org/abs/1806.09142>

Generating functions for multiple zeta star values  
Khodabakhsh Hessami Pilehrood, Tatiana Hessami Pilehrood

<http://arxiv.org/abs/1806.10237>

A Note on the Generalized and Universal Associated Legendre Equations  
Keegan L. A. Kirk, Kyle R. Bryenton, Nasser Saad

<http://arxiv.org/abs/1806.10510>

Multiple zeta star values on 3-2-1 indices  
Khodabakhsh Hessami Pilehrood, Tatiana Hessami Pilehrood

<http://arxiv.org/abs/1806.10531>

Self-adjoint Jacobi matrices on trees and multiple orthogonal polynomials  
Alexander I. Aptekarev, Sergey A. Denisov, Maxim L. Yattselev

<http://arxiv.org/abs/1806.10855>

Product matrix processes as limits of random plane partitions  
Alexei Borodin, Vadim Gorin, Eugene Strahov

<http://arxiv.org/abs/1806.11297>

Linear Statistics of Random Matrix Ensembles and the Airy Kernel  
Chao Min, Yang Chen

## Other Relevant OP–SF E–Prints

<http://arxiv.org/abs/1805.00076>

Several Topics in Experimental Mathematics  
Andrew Lohr

<http://arxiv.org/abs/1805.00345>

Dual Polynomials of the Multi–Indexed ( $q$ –)Racah Orthogonal Polynomials  
Satoru Odake

<http://arxiv.org/abs/1805.00423>

An adaptive partition of unity method for multivariate Chebyshev polynomial approximations  
Kevin W. Aiton, Tobin A. Driscoll

<http://arxiv.org/abs/1805.00895>

On exact multiplicity for a second order equation with radiation boundary conditions  
Pablo Amster, Mariel P. Kuna

<http://arxiv.org/abs/1805.01121>

On a  $q$ –trigonometric product and  $q$ –gamma products  
Mohamed El Bachraoui, József Sándor

<http://arxiv.org/abs/1805.01268>

On Wang and Ma’s Conjecture involving partial theta function  
Chuanan Wei

<http://arxiv.org/abs/1805.01338>

Beta polytopes and Poisson polyhedra:  $f$ –vectors and angles  
Zakhar Kabluchko, Christoph Thaele, Dmitry Zaporozhets

<http://arxiv.org/abs/1805.01593>

Quadratic ideals and Rogers–Ramanujan recursions  
Yuzhe Bai, Eugene Gorsky, Oscar Kivinen

<http://arxiv.org/abs/1805.02126>

Motivic multiple zeta values relative to  $\mu_2$   
Zhongyu Jin, Jiangtao Li

<http://arxiv.org/abs/1805.02148>

Generalizations of Ramanujan integral associated with infinite Fourier cosine transforms in terms of hypergeometric functions and its applications  
M. I. Qureshi, Showkat Ahmad Dar

<http://arxiv.org/abs/1805.02197>

On the  $q$ –TASEP with a random initial condition  
Takashi Imamura, Tomohiro Sasamoto

<http://arxiv.org/abs/1805.02484>

Lewis–Riesenfeld quantization and  $SU(1,1)$  coherent states for 2D damped harmonic oscillator  
Latévi M. Lawson, Gabriel Y. H. Avossevou, Laure Gouba

<http://arxiv.org/abs/1805.02864>

Recursion formulas of  $q$ -Appell functions

Xiaoxia Wang, Wei Chuanan

<http://arxiv.org/abs/1805.03029>

Some Order-Theoretic Properties of the Zeros of the Zeta Function

Boian Lazov

<http://arxiv.org/abs/1805.03780>

$M_2$ -Ranks of overpartitions modulo 6 and 10

Helen W. J. Zhang

<http://arxiv.org/abs/1805.03826>

Fundamental solutions for a class of multidimensional elliptic equations with several singular coefficients

Tuhtasin Ergashev

<http://arxiv.org/abs/1805.03881>

High pseudomoments of the Riemann zeta function

Ole Fredrik Brevig, Winston Heap

<http://arxiv.org/abs/1805.04489>

Convolution identities for scale transformations of Appell polynomials

José A. Adell, Alberto Lekuona

<http://arxiv.org/abs/1805.04673>

Quantum walk on a toral phase space

Sivaprasad Omanakuttan, Arul Lakshminarayan

<http://arxiv.org/abs/1805.05207>

Coefficients and higher order derivatives of cyclotomic polynomials: old and new

Andrés Herrera-Poyatos, Pieter Moree

<http://arxiv.org/abs/1805.06204>

$q$ -Stieltjes classes for some families of  $q$ -distributions

Sofiya Ostrovska, Mehmet Turan

<http://arxiv.org/abs/1805.06519>

Hypergeometric expansions of the general Heun function governed by two-term recurrence relations

T. A. Ishkhanyan, A. M. Ishkhanyan

<http://arxiv.org/abs/1805.06560>

Extensions of Ramanujan's reciprocity theorem and the Andrews-Askey integral

Zhi-Guo Liu

<http://arxiv.org/abs/1805.06568>

Gauss summation and Ramanujan type series for  $1/\pi$

Zhi-Guo Liu

<http://arxiv.org/abs/1805.06633>

The blocks and weights of finite special linear and unitary groups

Zhicheng Feng

<http://arxiv.org/abs/1805.06733>

On a probabilistic Nyman–Beurling criterion  
Sébastien Darses, Erwan Hillion

<http://arxiv.org/abs/1805.06755>

Laplace transforms based some novel integrals via hypergeometric technique  
M. I. Qureshi, Showkat Ahmad Dar

<http://arxiv.org/abs/1805.06831>

Relating log–tangent integrals with the Riemann zeta function  
Lahoucine Elaissaoui, Zine El–Abidine Guennoun

<http://arxiv.org/abs/1805.06927>

Estimating the Koebe radius for polynomials  
Dmitriy Dmitrishin, Andrey Smorodin, Alex Stokolos

<http://arxiv.org/abs/1805.06940>

A method for computation of scattering amplitudes and Green functions of whole axis problems  
Raúl Castillo–Pérez, Vladislav V. Kravchenko, Sergii M. Torba

<http://arxiv.org/abs/1805.07292>

A  $q$ –extension of a partial differential equation and the Hahn polynomials  
Zhi–Guo Liu

<http://arxiv.org/abs/1805.07755>

Dunkl jump processes: relaxation and a phase transition  
Sergio Andraus

<http://arxiv.org/abs/1805.08056>

Explicit formulas of Euler sums via multiple zeta values  
Ce Xu, Weiping Wang

<http://arxiv.org/abs/1805.08475>

Evaluation of Gaussian hypergeometric series using Huff’s models of elliptic curves  
Mohammad Sadek, Nermine El–Sissi, Arman Shamsi Zargar, Naser Zamani

<http://arxiv.org/abs/1805.08648>

A three–term theta function identity with applications  
Bing He, Hongcun Zhai

<http://arxiv.org/abs/1805.08759>

Asymptotics for the Fourier coefficients of eta–quotients  
Shane Chern

<http://arxiv.org/abs/1805.08760>

Moments of random matrices and hypergeometric orthogonal polynomials  
Fabio Deelan Cunden, Francesco Mezzadri, Neil O’Connell, Nick Simm

<http://arxiv.org/abs/1805.08811>

Some multidimensional integrals in number theory and connections with the Painlevé V equation

Estelle Basor, Fan Ge, Michael O. Rubinstein

<http://arxiv.org/abs/1805.09761>

Expansions of the Riemann Zeta function in the critical strip

B. Candelpergher

<http://arxiv.org/abs/1805.09771>

On some vertex algebras related to  $V_{-1}(\mathfrak{sl}(n))$  and their characters

Drazen Adamovic, Antun Milas

<http://arxiv.org/abs/1805.09955>

Continuous-stage Runge–Kutta methods based on weighted orthogonal polynomials

Wensheng Tang

<http://arxiv.org/abs/1805.10450>

On a surface isolated by Gambier

Runliang Lin, Robert Conte

<http://arxiv.org/abs/1805.10480>

Analytical Solution to Improper Integral of Divergent Power Functions Using The Riemann Zeta Function

Farhad Aghili, Siamak Tafazoli

<http://arxiv.org/abs/1805.10495>

Representation of the Green's function for nonlinear differential equations

Marco Frasca, Asatur Khurshudyan

<http://arxiv.org/abs/1805.10659>

Further Spectral Properties of the Weighted Finite Fourier Transform Operator and Related Applications

Nour El Houda Bourguiba, Souabni Ahmed

<http://arxiv.org/abs/1805.10771>

Jacobi inversion formulae for a curve of Weierstrass normal form

Jiyo Komeda, Shigeki Matsutani

<http://arxiv.org/abs/1805.11855>

Rational extension of Newton diagram for the positivity of  ${}_1F_2$  hypergeometric functions and Askey–Szegő problem

Yong–Kum Cho, Seok–Young Chung, Hera Yun

<http://arxiv.org/abs/1805.11863>

An extension of positivity for integrals of Bessel functions and Buhmann's radial basis functions

Yong–Kum Cho, Seok–Young Chung, Hera Yun

<http://arxiv.org/abs/1805.12366>

Riemann–Hilbert factorization of matrices invariant under inversion in a circle

Hideshi Yamane

<http://arxiv.org/abs/1805.12548>

Truncated Gauss hypergeometric series and its application in digamma function  
M. I. Qureshi, Saima Jabee, M. Shadab

<http://arxiv.org/abs/1806.00056>

Discrete harmonic analysis associated with Jacobi expansions I: the heat semigroup  
Alberto Arenas, Óscar Ciaurri, Edgar Labarga

<http://arxiv.org/abs/1806.00274>

General Representation of Nonlinear Green's Function for Second Order Differential Equations Nonlinear in the First Derivative  
Marco Frasca, Asatur Khurshudyan

<http://arxiv.org/abs/1806.00279>

The Chromatic Number of the  $q$ -Kneser Graph for  $q \geq 5$   
Ferdinand Ihringer

<http://arxiv.org/abs/1806.00339>

Harmonic analysis of little  $q$ -Legendre and associated symmetric Pollaczek polynomials  
Stefan Kahler

<http://arxiv.org/abs/1806.00747>

On  $b$ -Whittaker functions  
Gus Schrader, Alexander Shapiro

<http://arxiv.org/abs/1806.00761>

New Solvable Potentials with Bound State Spectrum  
Kazimierz Rajchel

<http://arxiv.org/abs/1806.00846>

A bivariate generating function for zeta values and related supercongruences  
Roberto Tauraso

<http://arxiv.org/abs/1806.00876>

A modular-invariant modified Weierstrass sigma-function as a building block for lowest-Landau-level wavefunctions on the torus  
F. D. M. Haldane

<http://arxiv.org/abs/1806.01060>

Sharp multiplier theorem for multidimensional Bessel operators  
Edyta Kania, Marcin Preisner

<http://arxiv.org/abs/1806.01148>

On Studying the Phase Behavior of the Riemann Zeta Function Along the Critical Line  
Henrik Stenlund

<http://arxiv.org/abs/1806.01187>

Maass forms and the mock theta function  $f(q)$   
Scott Ahlgren, Alexander Dunn

<http://arxiv.org/abs/1806.02584>

Non-trivial Darboux solutions of Classical Painlevé second equation  
Irfan Mahmood

<http://arxiv.org/abs/1806.02735>

Supercongruences concerning truncated hypergeometric series  
Chen Wang, Hao Pan

<http://arxiv.org/abs/1806.02883>

Generalized Polylogarithms in Maple  
Hjalte Frellesvig

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Some Continued Fractions for  $\pi$  and  $G$   
Amrik Singh Nimbran, Paul Levrie

<http://arxiv.org/abs/1806.03355>

On normalized Horn systems  
Christine Berkesch, Laura Felicia Matusevich, Uli Walther

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Symplectic integration with Jacobi polynomials  
Wensheng Tang

<http://arxiv.org/abs/1806.03415>

Transcendence for sums of trigonometric and digamma functions and explicit values for their  $q$ -analogues  
Mohamed El Bachraoui, József Sándor

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Isoperimetric inequalities in Riemann surfaces and graphs  
Álvaro Martínez-Pérez, José M. Rodríguez

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A new proof of the duality of multiple zeta values and its generalizations  
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Ohno-type identities for multiple harmonic sums  
Shin-ichiro Seki, Shuji Yamamoto

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A bijective proof of a false theta function identity from Ramanujan's lost notebook  
Hannah Burson

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The  $q$ -Borel Sum of Divergent Basic Hypergeometric series  ${}_r\varphi_s(a; b; q, x)$   
Shunya Adachi

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On poly-Euler numbers of the second kind  
Takao Komatsu

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Fluctuations for block spin Ising models  
Matthias Löwe, Kristina Schubert

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Explicit expressions for the related numbers of higher order Appell polynomials  
Su Hu, Takao Komatsu

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A renormalization approach to the Riemann zeta function at  $-1$ ,  $1 + 2 + 3 + \dots \sim -1/12$   
Gunduz Caginalp

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Degenerate Bernstein Polynomials  
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Self-associated three-dimensional cones  
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Jacob's ladders, crossbreeding, secondary crossbreeding and synergetic phenomena generated by Riemann's zeta-function and some elementary functions on disconnected sets of the critical line  
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Spectral curves for hypergeometric Hurwitz numbers  
Jan Ambjørn, Leonid O. Chekhov

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Transition functions of diffusion processes with the Jack parameter on the Thoma simplex  
Sergei Korotkikh

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Some Rapidly Converging Series for  $\zeta(2n + 1)$  from Abstract Operators  
Guang-Qing Bi

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Analytic computations of digamma function using some new identities  
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Some summation theorems for Clausen's hypergeometric functions with unit argument  
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Fourier series of Jacobi-Sobolev polynomial  
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Irregular conformal blocks and connection formulae for Painlevé V functions  
O. Lisovyy, H. Nagoya, J. Roussillon



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On the interplay between hypergeometric series, Fourier–Legendre expansions and Euler sums

Marco Cantarini, Jacopo D’Aurizio

<http://arxiv.org/abs/1806.08417>

Explicit formulae for all higher order exponential lacunary generating functions of Hermite polynomials

Nicolas Behr, Gérard H. E. Duchamp, Karol A. Penson

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Summation of Gaussian shifts as Jacobi’s third Theta function

Kaifu Wang, Shengxin Zhu

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On the restricted partition function via determinants with Bernoulli polynomials

Mircea Cimpoeas

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On criteria related to the reciprocal of the Riemann zeta function

Alexander E. Patkowski

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Partitions of primes defined by Chebyshev and Lucas polynomials

Maciej P. Wojtkowski

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Close encounters with the Stirling numbers of the second kind

Khristo N. Boyadzhiev

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Modified Szegő–Widom Asymptotics for Block Toeplitz Matrices with Zero Modes

E. Basor, J. Dubail, T. Emig, R. Santachiara

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On Evaluation of Zeta and Related Functions by Abstract Operators

Guang–Qing Bi

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SPDE Limit of Weakly Inhomogeneous ASEP

Ivan Corwin, Li–Cheng Tsai

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Weighted Hurwitz numbers and topological recursion

A. Alexandrov, G. Chapuy, B. Eynard, J. Harnad

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Partial sums of Hyper–Bessel function with applications

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Newton polytopes and algebraic hypergeometric series

Alan Adolphson, Steven Sperber

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Full-parameter discrete Painlevé systems from non-translational Cremona isometries  
Alexander Stokes

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Computation of matrix gamma function  
Joao R. Cardoso, Amir Sadeghi

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A functional approach to estimation of the parameters of generalized negative binomial and gamma distributions  
Andrey K. Gorshenin, Victor Yu. Korolev

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Logarithmic means of Walsh-Fourier Series  
Ushangi Goginava

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Preserving Topology while Breaking Chirality: From Chiral Orthogonal to Anti-symmetric Hermitian Ensemble  
Gernot Akemann, Mario Kieburg, Adam Mielke, Pedro Vidal

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Special functions associated with  $K$ -types of degenerate principal series of  $Sp(n, \mathbb{C})$   
Grégory Mendousse

<http://arxiv.org/abs/1806.11313>

Green's functions for higher order nonlinear equations  
Marco Frasca, Asatur Zh. Khurshudyan

Topic #6 ——— OP – SF Net 25.4 ——— July 15, 2018

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](mailto:howard.cohl@nist.gov), or [spost@hawaii.edu](mailto:spost@hawaii.edu).

Contributions to OP-SF NET 25.5 should be sent by September 1, 2018.

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SIAM-OPSF (OP-SF Talk) is a listserv of the SIAM Activity Group on Special Functions and Orthogonal Polynomials, which facilitates communication among members, and friends of the Activity Group. See the previous Topic. To post an item to the listserv, send e-mail to [siam-opsf@siam.org](mailto:siam-opsf@siam.org).

WWW home page of this Activity Group:

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

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The elected Officers of the Activity Group (2017–2019) are:

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Sarah Post, Program Director

Yuan Xu, Secretary

The appointed officers are:

Howard Cohl, OP–SF NET co–editor

Sarah Post, OP–SF NET co–editor

Diego Dominici, OP–SF Talk moderator

Bonita Saunders, Webmaster and OP–SF Talk moderator

Topic #7    ———    OP – SF Net 25.4    ———    July 15, 2018

From: OP–SF Net Editors

Subject: Thought of the Month by **David Hilbert**

Mathematics knows no races or geographic boundaries; for mathematics, the cultural world is one country.

**David Hilbert** quoted in *Mathematical Circles Revisited* (1971) by Howard Whitley Eves.