

# OP-SF NET – Volume 25, Number 3 – May 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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**Calendar of Events:**

**May 14–18, 2018**

Workshop on Complex ODEs: Asymptotics, Orthogonal Polynomials and  
Random Matrices, Random Matrices EurAsia-2018,  
Pisa, Italy

<http://www.crm.sns.it/event/429>

**June 21–24, 2018**

Combinatory Analysis 2018

A Conference in Honor of George Andrews' 80<sup>th</sup> Birthday  
Pennsylvania State University, State College, PA

<http://personal.psu.edu/jxs23/gea80/>

**June 25–29, 2018**

Orthogonal Polynomials and Special Functions Summer School (OPSF-S8)  
Higher School of Sciences and Technology, Sousse University, Sousse, Tunisia

<http://www.essths.rnu.tn/OPSF-S8/acceuil.html>

**July 3–6, 2018**

VII Iberoamerican School on Orthogonal Polynomials and Applications (EIBPOA2018)  
Universidad Carlos III de Madrid, Leganés, Spain  
<https://sites.google.com/site/eibpoa2018>

**July 8–13, 2018**

IX Jaen Conference on Approximation Theory, Computer Aided Geometric Design,  
Numerical Methods and Applications, Dedicated to Professor Guillermo  
Lopez-Lagomasino on the occasion of his 70<sup>th</sup> birthday,  
Úbeda, Jaen, Spain  
<http://www.ujaen.es/revista/jja/jca>

**July 25–August 15, 2018**

Summer Research Institute on  $q$ -Series  
Nankai University, Tianjin, P. R. China  
<http://www.combinatorics.net/q2018>

**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://side-conferences.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>

**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/>

From: Walter Van Assche ([walter.vanassche@kuleuven.be](mailto:walter.vanassche@kuleuven.be))

Subject: Report on: Paul Nevai & Boris Mityagin Workshop at Ohio State University, USA

The [ATTI Workshop](#), “Analysis, Approximation Theory, Operator Theory and their Interconnections” on the occasion of the 70<sup>th</sup> birthday of Paul Nevai and the 80<sup>th</sup> birthday of Boris Mityagin.

There was a workshop at The Ohio State University (March 13–16, 2018) on the occasion of the 70<sup>th</sup> birthday of Paul Nevai and the 80<sup>th</sup> birthday of [Boris Mityagin](#). Most people will know Paul Nevai as one of the editors-in-chief of the [Journal of Approximation Theory](#), but he is mostly one of the leading experts on orthogonal polynomials and his papers since the 1970’s have been very influential. Boris Mityagin is an expert in functional analysis and operator theory with applications in approximation theory. Since both had a long career at The Ohio State University, it was quite natural to celebrate them there.



Figure 1: On the picture are Andrei Martínez–Finkelshtein, Hrushikesh Mhaskar, Paul Nevai, Vilmos Totik, Barry Simon, Walter Van Assche, Kathy Driver, Jeff Geronimo, and Tamas Erdelyi (ignoring the waiter in the back); Photo Credit: Andrei Martínez–Finkelshtein.

The local organizers Jan Lang and Rodica Costin did a great job in getting a number of friends and international experts together. On the first day there were expository talks by Barry Simon (Szegő–Widom asymptotics for Chebyshev polynomials on subsets of  $\mathbf{R}$ ), Doron Lubinsky (A walk through Paul’s garden) and myself (Non-linear recurrence relations, orthogonal polynomials and Painlevé equations) which were full of pointers to the work of Paul Nevai. Furthermore, Dorothee Haroske talked on “Some recent results about spaces of Morey type”, which was closer to Boris Mityagin’s research. The second day also had a few expository talks: Jeff Geronimo talked on “Orthogonal Polynomials on

the real line with recurrence coefficients decaying exponentially to their limits”, Vladimir Andrievskii’s talk was on “Polynomial approximation and polynomial inequalities in the complex plane”, Lubos Pick gave a very entertaining talk on “Rearrangement techniques, Sobolev embeddings and isoperimetric inequalities”, and Vilmos Totik gave an overview on “Paul Nevai’s work on orthogonal polynomials and Christoffel functions”. Both Paul and Boris were also given the opportunity to explain what they have been doing the past few decades and the audience certainly appreciated to hear both of them.

Amos Ron, another editor-in-chief of the Journal of Approximation Theory, opened the third day of the workshop with a talk on “Multivariate splines: old and new”. Kathy Driver then showed that “Zeros of Jacobi polynomials” is still a topic where interesting results can be found using various techniques. Andrea Cianchi added his part on operator theory with his talk on “Second-order two-sided estimates in nonlinear elliptic problems”, and Maxim Derevyagin returned to orthogonal polynomials with his view on “Szegő’s theorem for a nonclassical case”. In the afternoon we were served another expository talk on “Linerability: a person history” by Richard Aron, followed by Vladimir Peller with “A solution of M. G. Krein’s problem and absolute continuity of the spectral shift” and Hrushikesh Mhaskar who gave “Some applications of a Tauberian theorem”.

On the fourth and final day, we were given another nice mixture of Paul-Boris related topics. Andrei Martínez-Finkelshtein presented “Multiple non-Hermitian orthogonality and vector electrostatics: results, connections and problems”, and Maxim Yattselev, Anna Maltsev and Plamen Iliev explained their work on “Zeros of random polynomials spanned by orthogonal polynomials on the unit circle”, “Localization and landscape functions on quantum graphs” and “Bispectral problems, Lie theory and integrability”. The afternoon had the last expository talk “Approximation numbers of Sobolev embeddings” by Winfried Sickel, and the closing two talks by Tamas Erdelyi, who gave “A survey on some recent progress in the study of the Rudin-Shapiro polynomials” and Brian Simanek who closed with “Geronimus polynomials and Chebyshev polynomials”.

This workshop was a nice opportunity to see how mathematics has developed since the 1960’s–1970’s til now in the research area of Paul Nevai (orthogonal polynomials and approximation theory) and Boris Mityagin (functional analysis, operator theory and approximation) and how various new and exciting problems and interconnections are still getting a lot of attention by starting researchers.

Topic #2      OP – SF Net 25.3      May 15, 2018

From: Walter Van Assche ([walter.vanassche@kuleuven.be](mailto:walter.vanassche@kuleuven.be))

Subject: Call for Nominations: Gábor Szegő Prize

### **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 committee can make exceptions, if in their opinion the candidate is at an

equivalent stage in their career.

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.

**Nomination Deadline:** October 15, 2018

**Required Materials:**

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

The list of selection committee members will be posted when it becomes available.

**Topic #3      ——— OP – SF Net 25.3      ——— May 15, 2018**

From: OP-SF Net Editors

Subject: Announcement: Webpage for OPSFA-15 in Linz, Austria, is now online

The webpage for OPSFA-15 is now online: <http://www.risc.jku.at/conferences/opsfa2019/>.

The 15<sup>th</sup> International Symposium on Orthogonal Polynomials, Special Functions and Applications (OPSFA'15) will take place in Hagenberg, Austria, at the Research Institute for Symbolic Computation (RISC) of the Johannes Kepler University Linz (JKU), July 22-26, 2019, with arrival day July 21, 2019.

Conferences in the OPSFA series provide a forum for mathematicians, physicists, and computational scientists to communicate recent research results in the areas of orthogonal polynomials and special functions. These play an essential role in analytical and computational investigations in applied mathematics.

This symposium is an event of the SIAM Activity Group on Orthogonal Polynomials and Special Functions. The activity group promotes basic research in orthogonal polynomials and special functions, as well as applications of this subject in other parts of mathematics, and in science and industry. It encourages and supports the exchange of information, ideas, and techniques between workers in this field and other mathematicians and scientists. The activity group also awards the Gábor Szegő Prize every two years to an early-career researcher for outstanding research contributions in the area of orthogonal polynomials and special functions.

**Topic #4      ——— OP – SF Net 25.3      ——— May 15, 2018**

From: Mourad Ismail ([mourad.eh.ismail@gmail.com](mailto:mourad.eh.ismail@gmail.com))

and Ruiming Zhang ([ruimingzhang@yahoo.com](mailto:ruimingzhang@yahoo.com))

Subject: Announcement: Summer Research Institute on  $q$ -Series in Tianjin, China

## Summer Research Institute on $q$ -Series

Nankai University, Tianjin, P. R. China

July 25–August 15, 2018

### Organizers:

Mourad Ismail, University of Central Florida  
Ruiming Zhang, Northwest A&F University

### Sponsors:

Center for Applied Mathematics, Tianjin University  
Center for Combinatorics, Nankai University  
Chern Institute of Mathematics, Nankai University

### Invited Lecturers:

Kathrin Bringmann, University of Cologne  
Subject: Modular Forms and Mock Theta Functions (5 hours)

Mourad Ismail, University of Central Florida  
Subject:  $q$ -Series (3 hours)

Peter Paule, Johannes Kepler University  
Subject: Symbolic and Computer Algebra (4 hours)

Simon Ruijsenaars, University of Leeds  
Subject: Mathematical Physics (2 hours)

Alexei Zhedanov, Renmin University of China  
Subject: Mathematical Physics (2 hours)

### Invited One Hour Speakers:

Krishnaswami Alladi, University of Florida  
Dan Dai, City University of Hong Kong  
Shishuo Fu, Chongqing University  
Kathy Ji, Tianjin University  
Christian Krattenthaler, University of Vienna  
Zhiguo Liu, East China Normal University  
Tuen Wai Ng, The University of Hong Kong  
Pablo Roman, the National University of Cordoba  
Jin Wang, Soochow University  
Ole Warnaar, The University of Queensland  
Ae Ja Yee, Penn State University  
Zhi-Zheng Zhang, Luoyang Normal University

Topic #5 ——— OP – SF Net 25.3 ——— May 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 March and April 2018. This list has been separated into two categories.



## OP-SF Net Subscriber E-Prints

<http://arxiv.org/abs/1803.00632>

Integrals in Gradshteyn and Ryzhik: Hyperbolic and trigonometric function  
Mark W. Coffey

<http://arxiv.org/abs/1803.01318>

Coherent states for ladder operators of general order related to exceptional orthogonal polynomials

Scott E. Hoffmann, Véronique Hussin, Ian Marquette, Yao-Zhong Zhang

<http://arxiv.org/abs/1803.01705>

Fundamental solutions of generalized bi-axially symmetric multivariable Helmholtz equation

Tuhtasin Ergashev, Anvarjon Hasanov

<http://arxiv.org/abs/1803.01830>

A  $q$ -microscope for supercongruences

Victor J. W. Guo, Wadim Zudilin

<http://arxiv.org/abs/1803.02178>

A Joint Central Limit Theorem for the Sum-of-Digits Function, and Asymptotic Divisibility of Catalan-like Sequences

Michael Drmota, Christian Krattenthaler

<http://arxiv.org/abs/1803.02757>

The evaluation of infinite sums of products of Bessel functions

R. B. Paris

<http://arxiv.org/abs/1803.02775>

Dualities in the  $q$ -Askey scheme and degenerated DAHA

Tom H. Koornwinder, Marta Mazzocco

<http://arxiv.org/abs/1803.02966>

Modulus  $p^2$  congruences involving harmonic numbers

Jizhen Yang, Yunpeng Wang

<http://arxiv.org/abs/1803.03012>

A summation formula for a  ${}_3F_2(1)$  hypergeometric series

R. B. Paris

<http://arxiv.org/abs/1803.03116>

Solutions of systems of the partial differential equations of Kampé de Fériet type functions

Anvarjon Hasanov, Tuhtasin Ergashev

<http://arxiv.org/abs/1803.03135>

Variations on a Hypergeometric Theme

Michael Milgram

<http://arxiv.org/abs/1803.03160>

A note on odd zeta values

Tanguy Rivoal, Wadim Zudilin

<http://arxiv.org/abs/1803.04212>

On some Hamiltonian properties of the isomonodromic tau functions  
A. R. Its, A. Prokhorov

<http://arxiv.org/abs/1803.05164>

A curious class of Hankel determinants  
Johann Cigler

<http://arxiv.org/abs/1803.05186>

Determinantal elliptic Selberg integrals  
Hjalmar Rosengren

<http://arxiv.org/abs/1803.07149>

Fundamental solutions and Gegenbauer expansions of Helmholtz operators on Riemannian spaces of constant curvature  
Howard S. Cohl, Thinh H. Dang, T. M. Dunster

<http://arxiv.org/abs/1803.07657>

Bounds for modified Struve functions of the first kind and their ratios  
Robert E. Gaunt

<http://arxiv.org/abs/1803.07841>

Asymptotic expansions for the incomplete gamma function in the transition regions  
Gergő Nemes, Adri B. Olde Daalhuis

<http://arxiv.org/abs/1803.08029>

On characters of  $L_{\mathfrak{sl}_n}(-\Lambda_0)$ -modules  
Kathrin Bringmann, Karl Mahlburg, Antun Milas

<http://arxiv.org/abs/1803.08905>

Many odd zeta values are irrational  
Stéphane Fischler, Johannes Sprang, Wadim Zudilin

<http://arxiv.org/abs/1803.09271>

On the Schur function expansion of a symmetric quasi-symmetric function  
Ira M. Gessel

<http://arxiv.org/abs/1803.09396>

Asymptotic Bessel-function expansions for Legendre and Jacobi functions  
Loyal Durand

<http://arxiv.org/abs/1803.09636>

Dual addition formula for continuous  $q$ -ultraspherical polynomials  
Tom H. Koornwinder

<http://arxiv.org/abs/1803.10085>

Continuous and Discrete Painlevé IV from a Discontinuous Linear Statistic in the Gaussian Unitary Ensemble  
Chao Min, Yang Chen



<http://arxiv.org/abs/1803.10954>

Gap Probability Distribution of the Jacobi Unitary Ensemble: An Elementary Treatment, from Finite  $n$  to Double Scaling  
Chao Min, Yang Chen

<http://arxiv.org/abs/1803.11191>

Approximation of the Boltzmann Collision Operator Based on Hermite Spectral Method  
Yanli Wang, Zhenning Cai

<http://arxiv.org/abs/1803.11321>

On properties of a deformed Freud weight  
Mengkun Zhu, Yang Chen

<http://arxiv.org/abs/1804.00563>

Large  $z$  asymptotics for special function solutions of Painlevé II in the complex plane  
Alfredo Deaño

<http://arxiv.org/abs/1804.01323>

Exceptional Jacobi polynomials  
Niels Bonneux

<http://arxiv.org/abs/1804.01420>

On capacity computation for symmetric polygonal condensers  
Sergei Bezrodnykh, Andrei Bogatyrev, Sergei Goreinov, Oleg Grigoriev, Harri Hakula, Matti Vuorinen

<http://arxiv.org/abs/1804.01597>

Counting with Borel's Triangle  
Yue Cai, Catherine Yan

<http://arxiv.org/abs/1804.01616>

Prime Parking Functions on Rooted Trees  
Westin King, Catherine H. Yan

<http://arxiv.org/abs/1804.02856>

Discrete orthogonal polynomials with hypergeometric weights and Painlevé VI  
Galina Filipuk, Walter Van Assche

<http://arxiv.org/abs/1804.03173>

On the increasing tritronquée solutions of the Painlevé-II equation  
Peter D. Miller

<http://arxiv.org/abs/1804.03701>

Catalan functions and  $k$ -Schur positivity  
Jonah Blasiak, Jennifer Morse, Anna Pun, Daniel Summers

<http://arxiv.org/abs/1804.03801>

Computing Integrals Involved the Gaussian Function with a Small Standard Deviation  
Yunyun Ma, Yuesheng Xu

<http://arxiv.org/abs/1804.03982>

On the properties of special functions generating the kernels of certain integral operators  
Dmitrii B. Karp, Yuri B. Melnikov, Irina V. Turuntaeva

<http://arxiv.org/abs/1804.04129>

Some hypergeometric integrals for linear forms in zeta values  
Wadim Zudilin

<http://arxiv.org/abs/1804.04296>

Special values of  $q$ -gamma products  
Tanay Wakhare

<http://arxiv.org/abs/1804.06749>

Asymptotic expansions of Jacobi polynomials for large values of  $\beta$  and of their zeros  
Amparo Gil, Javier Segura, Nico M. Temme

<http://arxiv.org/abs/1804.07076>

Non-iterative computation of Gauss–Jacobi quadrature by asymptotic expansions for large degree

Amparo Gil, Javier Segura, Nico M. Temme

<http://arxiv.org/abs/1804.07512>

Jacobi–Angelesco multiple orthogonal polynomials on an  $r$ -star  
Marjolein Leurs, Walter Van Assche

<http://arxiv.org/abs/1804.07527>

A note on an integral of Dixit, Roy and Zaharescu  
R. B. Paris

<http://arxiv.org/abs/1804.08762>

Spectral approximation of convolution operator  
Kuan Xu, Ana Loureiro

<http://arxiv.org/abs/1804.09158>

The Smallest Singular Values and Vector-Valued Jack Polynomials  
Charles F. Dunkl

<http://arxiv.org/abs/1804.09922>

Arithmetic of Catalan's constant and its relatives  
Wadim Zudilin

<http://arxiv.org/abs/1804.10144>

Volterra-type convolution of classical polynomials  
Ana F. Loureiro, Kuan Xu

## Other Relevant OP–SF E-Prints

<http://arxiv.org/abs/1803.00221>

Inverse Values of the Riemann Zeta Function Tails  
Donggyun Kim, Kyunghwan Song

<http://arxiv.org/abs/1803.00336>

A new and sharper bound for Legendre expansion of differentiable functions  
Haiyong Wang

<http://arxiv.org/abs/1803.00760>

On large values of  $L(\sigma, \chi)$

Christoph Aistleitner, Kamalakshya Mahatab, Marc Munsch, Alexandre Peyrot

<http://arxiv.org/abs/1803.00789>

Bellman Functions and Dimension Free  $L^p$  estimates for the Riesz Transforms in Bessel settings

Jorge J. Betancor, Estefanía Dalmaso, Juan C. Fariña, Roberto Scotto

<http://arxiv.org/abs/1803.00915>

Radial basis function methods for optimal control of the convection–diffusion equation

Pedro González Casanova, Jorge Zavaleta

<http://arxiv.org/abs/1803.01030>

On Mittag–Leffler  $d$ -orthogonal polynomials and their  $q$ -analogues

Abdessadek Saib

<http://arxiv.org/abs/1803.01398>

Hirzebruch Functional Equation: Classification of Solutions

Elena Yu. Bunkova

<http://arxiv.org/abs/1803.01608>

Generalized solutions of the degenerate hyperbolic equation of the second kind with a spectral parameter

Tuhtasin Ergashev

<http://arxiv.org/abs/1803.01704>

The inversion formula for the Volterra integral equation with the Humbert function in the nuclear and its applications to the boundary value problems

Tuhtasin Ergashev

<http://arxiv.org/abs/1803.01713>

The Cauchy problem for a degenerate hyperbolic equation of the second kind

Tuhtasin Ergashev

<http://arxiv.org/abs/1803.01735>

Differential–recurrence properties of dual Bernstein polynomials

Filip Chudy, Paweł Woźny

<http://arxiv.org/abs/1803.01975>

Exponential Riordan arrays and generalized Narayana polynomials

E. Burlachenko

<http://arxiv.org/abs/1803.01976>

An infinite family of congruences arising from a second order mock theta function

Shane Chern, Chun Wang

<http://arxiv.org/abs/1803.02320>

Argyres–Douglas theories, Painlevé II and quantum mechanics

Alba Grassi, Jie Gu

<http://arxiv.org/abs/1803.02467>

A  $q$ -analogue for Euler's  $\zeta(2k) = \frac{(-1)^{k+1} 2^{2k} B_{2k} \pi^{2k}}{2(2k)!}$

Ankush Goswami

<http://arxiv.org/abs/1803.02513>

The monotonicity rules for the ratio of two Laplace transforms with applications  
Zhen-Hang Yang, Jing-Feng Tian

<http://arxiv.org/abs/1803.02515>

Staircases to analytic sum-sides for many new integer partition identities of Rogers-Ramanujan type

Shashank Kanade, Matthew C. Russell

<http://arxiv.org/abs/1803.02970>

Eigenvalues of Matrices whose Elements are Ramanujan Sums or Kloosterman Sums  
Noboru Ushiroya

<http://arxiv.org/abs/1803.03108>

Umbral Calculus, a Different Mathematical Language  
Silvia Licciardi

<http://arxiv.org/abs/1803.03110>

Transformation formulas and three-term relations for basic hypergeometric series  
Yuka Suzuki

<http://arxiv.org/abs/1803.03115>

The radius of convergence of the Heun function  
Yoon Seok Choun

<http://arxiv.org/abs/1803.03121>

Generalized Beta Function Defined by Wright Function  
Enes Ata

<http://arxiv.org/abs/1803.03122>

A new generalization of beta function with three parameters Mittag-Leffler function  
Muhammed Ay

<http://arxiv.org/abs/1803.03143>

Efficient method for fractional Lévy-Feller advection-dispersion equation using Jacobi polynomials

N. H. Sweilam, M. M. Abou Hasan

<http://arxiv.org/abs/1803.03219>

Integrable quad equations derived from the quantum Yang-Baxter equation  
Andrew P. Kels

<http://arxiv.org/abs/1803.03291>

Rapidly converging formulae for  $\zeta(4k \pm 1)$   
Shubho Banerjee, Blake Wilkerson

<http://arxiv.org/abs/1803.03836>

Large values of Dirichlet  $L$ -functions inside the critical strip  
Marc Munsch

<http://arxiv.org/abs/1803.03889>

Fast algorithms for Jacobi expansions via nonoscillatory phase functions  
James Bremer, Haizhao Yang

<http://arxiv.org/abs/1803.04274>

Quadratic and symmetric bilinear forms over finite fields and their association schemes  
Kai-Uwe Schmidt

<http://arxiv.org/abs/1803.04405>

The Matrix Bochner Problem  
W. Riley Casper, Milen Yakimov

<http://arxiv.org/abs/1803.04516>

Explicit inverse of tridiagonal matrix with applications in autoregressive modeling  
Linda S. L. Tan

<http://arxiv.org/abs/1803.05008>

Explicit tight bounds on the stably recoverable information for the inverse source problem  
Mirza Karamehmedović

<http://arxiv.org/abs/1803.05010>

Stable source reconstruction from a finite number of measurements in the Multi-frequency Inverse Source Problem  
Mirza Karamehmedović, Adrian Kirkeby, Kim Knudsen

<http://arxiv.org/abs/1803.05017>

On Computing Jacobi's Elliptic Function  $sn$   
Ernest Scheiber

<http://arxiv.org/abs/1803.05018>

Fractional derivative of composite functions: exact results and physical applications  
Gavriil Shchedrin, Nathan Smith, Anastasia Gladkina, Lincoln D. Carr

<http://arxiv.org/abs/1803.05516>

Translation operator with exceptional Laguerre polynomials  
Á. P. Horváth

<http://arxiv.org/abs/1803.05583>

Weak limits for weighted means of orthogonal polynomials  
Wolfgang Erb

<http://arxiv.org/abs/1803.05821>

Thermodynamics in the NC disc  
S. A. Franchino-Viñas, P. Pisani

<http://arxiv.org/abs/1803.05943>

Closed form expressions for Appell polynomials  
José A. Adell, Alberto Lekuona

<http://arxiv.org/abs/1803.06539>

The Graph Structure of Chebyshev Polynomials over Finite Fields and Applications  
Claudio Qureshi, Daniel Panario

<http://arxiv.org/abs/1803.06609>

Fundamental group of non-singular locus of Lauricella's  $F_C$   
Tomohide Terasoma

<http://arxiv.org/abs/1803.06930>

Explicit formula for the density of local times of Markov Jump Processes  
Ruojun Huang, Daniel Kious, Vladas Sidoravicius, Pierre Tarrès

<http://arxiv.org/abs/1803.07169>

On the meromorphic continuation of Beatty Zeta-Functions and Sturmian Dirichlet series  
Athanasios Sourmelidis

<http://arxiv.org/abs/1803.07732>

Superconvergence Points of Integer and Fractional Derivatives of Special Hermite Interpolations and Its Applications in Solving FDEs  
Beichuan Deng, Jiwei Zhang, Zhimin Zhang

<http://arxiv.org/abs/1803.07804>

Remarks on hypergeometric Bernoulli numbers  
Miho Aoki, Takao Komatsu

<http://arxiv.org/abs/1803.08210>

Formulas for non-holomorphic Eisenstein series and for the Riemann zeta function at odd integers  
Cormac O'Sullivan

<http://arxiv.org/abs/1803.08265>

The generating function of planar Eulerian orientations  
Mireille Bousquet-Mélou, Andrew Elvey Price, Andrew Price

<http://arxiv.org/abs/1803.08477>

WZ pairs and  $q$ -Analogues of Ramanujan series for  $1/\pi$  (with an appendix by Wadim Zudilin)  
Jesús Guillera

<http://arxiv.org/abs/1803.08585>

Motivic correlators, cluster varieties and Zagier's conjecture on  $\zeta_F(4)$   
Alexander B. Goncharov, Daniil Rudenko

<http://arxiv.org/abs/1803.08751>

On a generalization of restricted sum formula for multiple zeta values and finite multiple zeta values  
Hideki Murahara, Takuya Murakami

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Recursive formulas for  ${}_2F_1$  and  ${}_3F_2$  hypergeometric series  
J. L. González-Santander



<http://arxiv.org/abs/1803.09445>

On partial evaluation of a continued fraction of Ramanujan and evaluations of hyperbolic series

Nikos Bagis

<http://arxiv.org/abs/1803.09883>

Extremal weight projectors II

Hoel Queffelec, Paul Wedrich

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Madhusudhan Raman

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Generalized Eulerian Triangles and Some Special Production Matrices

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The  $1/k$ -Eulerian Polynomials as Moments, via Exponential Riordan Arrays

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Densities of bounded primes for hypergeometric series with rational parameters

Cameron Franc, Brandon Gill, Jason Goertzen, Jarrod Pas, Frankie Tu

<http://arxiv.org/abs/1803.10706>

Complementary Polynomials From Rodrigues' Representations For Confluent And Hypergeometric Functions And More

H. J. Weber

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$p$ -adic hypergeometrics

Fernando Rodriguez Villegas

<http://arxiv.org/abs/1803.10834>

Hypergeometric supercongruences

David Roberts, Fernando Rodriguez Villegas

<http://arxiv.org/abs/1803.10997>

A seamless extension of DG methods for hyperbolic problems to unbounded domains  
T. Benacchio, L. Bonaventura

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Tronquee solutions of the third and fourth Painlevé equations  
Xiaoyue Xia

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Vertex Operator Algebras with Two Simple Modules – the Mathur–Mukhi–Sen Theorem Revisited  
Geoffrey Mason, Kiyokazu Nagatomo, Yuichi Sakai

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On an analog of the Arakawa–Kaneko zeta function and relations of some multiple zeta values  
Ryota Umezawa

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A short construction of the Zhu algebra  
Jethro van Ekeren, Reimundo Heluani

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Exponential moments of the argument of the Riemann zeta function on the critical line  
Joseph Najnudel

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Relative twisted homology and cohomology groups associated with Lauricella's  $F_D$   
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Further results on Andrews–Yee's two identities for mock theta functions  $\omega(z; q)$  and  $v(z; q)$   
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Mean convergence of prolate spheroidal series and their extensions  
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Contributions to the study of the non-trivial roots of the Riemann zeta-function  
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On evaluation of the confluent Heun functions  
Oleg V. Motygin

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New recursive approximations for variable-order fractional operators with applications  
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Hobson's formula for Dunkl operators and its applications  
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On analytic properties of Meixner–Sobolev orthogonal polynomials of higher order difference operators  
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Proofs of some Ramanujan series for  $1/\pi$  using a Zeilberger's program  
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Comment on “Effects of cosmic–string framework on the thermodynamical properties of anharmonic oscillator using the ordinary statistics and the  $q$ -deformed superstatistics approaches”  
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Lie Symmetry Analysis of Some Conformable Fractional Partial Differential Equations  
B. A. Tayyan, A. H. Sakka

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On fundamental solutions for multidimensional Helmholtz equation with three singular coefficients  
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The admissible domain of the non-trivial zeros of the Riemann zeta function  
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New method of computing prolate spheroidal wavefunctions and bandlimited extrapolation: A general approach to bandlimited Fredholm kernels  
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Generalised Sobolev Stable Flux Reconstruction  
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The  $p$ -adic Gelfand–Kapranov–Zelevinsky hypergeometric complex  
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A Polynomial Chaos Expansion in Dependent Random Variables  
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Operator limits of random matrices  
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The generalized Whittaker function for quaternionic discrete series on exceptional and orthogonal groups  
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Sharp Approximations for the Ramanujan Constant  
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The Lerch zeta function as a fractional derivative  
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Macdonald denominators for affine root systems, orthogonal theta functions, and elliptic determinantal point processes  
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Two  $q$ -summation formulas and  $q$ -Analogues for Ramanujan-type series  
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On Asymptotic Formula for the First Moment of the Riemann Zeta-Function on the Critical Line  
Ilgar Sh. Jabbarov

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A symmetric formula for hypergeometric series  
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An upper bound for discrete moments of the derivative of the Riemann zeta-function  
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Electrostatic Interpretation of Roots of Orthogonal Polynomials  
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Short note on an open problem  
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Correlation functions of the integrable  $SU(n)$  spin chain  
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Tensor calculus in spherical coordinates using Jacobi polynomials. Part-I: Mathematical analysis and derivations  
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On Some Applications of Sakai's Geometric Theory of Discrete Painlevé Equations  
Anton Dzhamay, Tomoyuki Takenawa

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Recurrence Relations of the Multi-Indexed Orthogonal Polynomials V : Racah and  $q$ -Racah types  
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Three-parameter solutions of the PV-Schlesinger equation near the point at infinity and the monodromy data  
Shun Shimomura

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Summation formulas for Fox-Wright function  
Chuanan Wei, Lily Li Liu, Dianxuan Gong

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Meixner  $d$ -Orthogonal Polynomials Arising from  $su(1,1)$   
Fethi Bouzeffour, Borhen Halouani, Mubariz T Garayev

<http://arxiv.org/abs/1804.11273>

Truncated solutions of Painlevé equation  $P_V$   
Rodica D. Costin

Topic #6 ——— OP – SF Net 25.3 ——— May 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 25.4 should be sent by July 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:

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

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Andrei Martínez-Finkelshtein, Vice Chair  
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 25.3 ——— May 15, 2018

From: OP–SF Net Editors

Subject: Thought of the Month by **Hermann Weyl**

“In these days the angel of topology and the devil of abstract algebra fight for the soul of each individual mathematical domain.”

**Hermann Klaus Hugo Weyl** (November 9<sup>th</sup> 1885 – December 8<sup>th</sup> 1955). “Invariants”, Duke Mathematical Journal, Volume 5, Number 3 (1939), 489–502.