

# OP-SF NET – Volume 25, Number 6 – November 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:**

**November 22–24, 2018**

International Conference on Special Functions & Applications (ICSFA-2018)  
Amal Jyothi College of Engineering, Kanjirappally, Kottayam (Kerala), India  
<http://www.ssfaindia.org> (see link therein to “2018: XVII Annual Meeting”)

**December 3–4, 2018**

Two Days on Orthogonal Polynomials (2DPO)  
Universidad de Granada, Granada, Spain  
<http://www.ugr.es/~goya/D2PO2018/>

**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>

### January 16–19, 2019

2019 Joint Mathematics Meetings, American Mathematical Society,  
Baltimore Convention Center, Baltimore, Maryland, USA

[https://jointmathematicsmeetings.org/meetings/national/jmm2019/2217\\_program.html](https://jointmathematicsmeetings.org/meetings/national/jmm2019/2217_program.html)

*AMS Special Session on Orthogonal Polynomials, Quantum Probability,  
Harmonic and Stochastic Analysis,*

Organized by Nobuhiro Asal, Rodica Costin, Aurel L. Star and Hiroaki Yoshida

### 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  
(OPSPA–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 25.6 ——— November 15, 2018

From: Tom Koornwinder ([T.H.Koornwinder@uva.nl](mailto:T.H.Koornwinder@uva.nl))

Subject: 2019 Class of AMS Fellows: Vladimir Retakh, Anne Schilling, and Fern Hunt

**Vladimir Retakh** (Rutgers The State University of New Jersey New Brunswick) has been named a Fellow of the AMS, “For contributions to noncommutative algebra and noncommutative algebraic geometry.” He has 17 items in MathSciNet with MSC Primary/Secondary = 33.

**Anne Schilling** (University of California, Davis) has been named a Fellow of the AMS, “For contributions to algebraic combinatorics, combinatorial representation theory, and mathematical physics and for service to the profession.” She has 17 items in MathSciNet with MSC Primary/Secondary = 33.

(Note from H.S.Cohl.) **Fern Yvette Hunt** (National Institute of Standards and Technology) has been named a Fellow of the AMS, “For outstanding applications of mathematics to science and technology, exceptional service to the US government, and for outreach and mentoring.”

The list of the 2019 Class of the Fellows of the AMS are available at:

<http://www.ams.org/profession/ams-fellows/new-fellows>.

Topic #2 ——— OP – SF Net 25.6 ——— November 15, 2018

From: Peter Clarkson ([P.A.Clarkson@kent.ac.uk](mailto:P.A.Clarkson@kent.ac.uk))

Subject: Special OPSFA-14 Plenary Speaker Issue of *Studies in Applied Mathematics*

A special issue of *Studies in Applied Mathematics* has been published containing papers by plenary speakers at OPSFA14 in Canterbury, Kent, which was edited by Peter Clarkson and Adri Olde Daalhuis.

It is available at :

<https://onlinelibrary.wiley.com/toc/14679590/2018/141/4>

The papers in the special issue are:

- *Dualities in the  $q$ -Askey Scheme and Degenerate DAHA*,  
Tom H. Koornwinder and Marta Mazzocco
- *Beta Distributions and Sonine Integrals for Bessel Functions on Symmetric Cones*,  
Margit Rösler and Michael Voit
- *Algorithms for computing cubatures based on moment theory*,  
Mathieu Collowald and Evelyne Hubert
- *Exceptional Laguerre Polynomials*,  
Niels Bonneux and Arno B.J. Kuijlaars
- *Durfee Rectangles and Pseudo-Wronskian Equivalences for Hermite Polynomials*,  
David Gómez-Ullate and Yves Grandati Robert Milson
- *Rational Solutions of the Painlevé-III Equation*,  
Thomas Bothner, Peter D. Miller and Yue Sheng
- *The dynamics of conservative peakons in a family of  $U(1)$ -invariant integrable equations of NLS-Hirota type*,  
Stephen C. Anco, Xiangke Chang and Jacek Szmigielski

Topic #3 ——— OP – SF Net 25.6 ——— November 15, 2018

From: Paco Marcellán ([pacomarc@ing.uc3m.es](mailto:pacomarc@ing.uc3m.es))

Subject: Announcement: *Two Days on Orthogonal Polynomials* in Granada, Spain

There will be a workshop *Two Days on Orthogonal Polynomials* (2DPO).

Location: The Universidad de Granada, Granada, Spain.

Dates of Workshop: December 3–4, 2018.

Information about this workshop can be found at:

<http://www.ugr.es/~goya/D2PO2018>.

The objective of this workshop is to share, with various national and international researchers, the latest trends in research on orthogonal polynomials and special functions, as well as its connection with the related areas of approximation theory, operator theory, number theory, information theory, Fourier series, numerical analysis, and its applications in mathematical physics, optics, science and technology. For this, we have planned two days of invited talks on leading aspects of the theory of orthogonal polynomials.

There will be plenary lectures by the following individuals:

- Manuel Alfaro (Universidad de Zaragoza)
- Iván Area Carracedo (Universidad de Vigo)
- Carlos Beltrán (Universidad de Cantabria)
- Cleonice F. Bracciali (UNESP, Brasil)
- Ruymán Cruz Barroso (Universidad de La Laguna)
- Francisco Marcellán (Universidad Carlos III de Madrid)
- Judit Minguez (Universidad de La Rioja)
- Juan José Moreno–Balcázar (Universidad de Almería)
- Joaquín Sánchez Lara (Universidad de Granada)
- Alagacone Sri Ranga (UNESP, Brasil)

## Topic #4 ——— OP – SF Net 25.6 ——— November 15, 2018

From: Sergei Suslov ([sergei@asu.edu](mailto:sergei@asu.edu))

Subject: Workshop Report: AIMS Volkswagen Stiftung Workshop in Cameroon by Suslov

This fall, I had a chance to attend the AIMS Volkswagen Stiftung Workshop on *Introduction to Orthogonal Polynomials and Applications*, which took place on October 5–12, 2018, in Douala, Cameroon, Africa.

The workshop was composed of the following activities:

- Intensive preliminary training sessions on *Introduction to Orthogonal Polynomials and Applications* (October 5 – 6, 2018).
- Plenary talks by renowned experts in the field, presenting the various aspects of orthogonal polynomials and their applications.
- Tutorials by the same experts, to further discuss and provide detailed explanations to PhD and Master students, postdocs, and junior lecturers.
- Training sessions, delivered by specialists, to promote a good mastering and proper understanding of the important applications of orthogonal polynomials in various areas of science, for the benefit of young scientists. (These junior scientists are expected to take over and popularize this research domain in their home universities.)
- Contributed talks by the participants to enable young researchers to present talks & achievements on their own research interests in order to receive feedback from experts and also to engage networking.
- Coffee and lunch breaks combined with social events to facilitate additional discussions and interactions.

The program of the meeting was extremely intense. Plenary speakers included the current [President of Royal Spanish Mathematical Society \(RSME\)](#), Paco Marcellán, the current [President of the South African Mathematical Society \(SAMS\)](#), Kerstin Jordaan, the [Former President of the Université de Montréal](#), Luc Vinet, and other distinguished senior researchers from Africa, Europe and North America. More details are available on the event’s website: <http://www.aims-volkswagen-workshops.org>

The workshop co-organizers, [Prof. Dr. Wolfram Koepf](#), Universität Kassel, and [Prof. Dr. Ma-ma Foupouagnigni](#), African Institute for Mathematical Sciences (AIMS), did an outstanding



Figure 1: Conference group picture.

job of connecting current leaders in the field with young motivated African students and researchers, our next generation. (According to the statistics, by the year 2050, 40% of the Earth population under 18 years of age will be in Africa!). Special thanks to Nathale Wandji who was in charge of the local organization.

A good exhibition of classical and recent books/monographs on orthogonal polynomials and their applications, including some by the plenary speakers, was presented during the workshop.

This workshop is part of the mission of the [African Institute for Mathematical Sciences \(AIMS\)](#) inside the pan-African network of centers of excellence for postgraduate education, research and outreach in mathematical sciences.

Sergei Suslov, Professor  
School of Mathematical and Statistical Sciences  
Arizona State University

Topic #5 ——— OP – SF Net 25.6 ——— November 15, 2018

From: Maurice Kenfack Nagho ([kenfnang@gmail.com](mailto:kenfnang@gmail.com))

Subject: Workshop Report: AIMS Volkswagen Stiftung Workshop in Cameroon by Nangho

Report on the [AIMS Volkswagen Stiftung Workshop on Introduction to Orthogonal Polynomials and Applications, Douala, Cameroon](#), October 5–12, 2018.

During October 5–12, 2018, African academics, postdocs, and PhD students from seventeen different nationalities and various research domains (PDEs, probability, orthogonal polynomials, numerical analysis and physics), as well as fourteen international experts on orthogonal polynomials and special functions came together at the [Hotel Prince de Galles in Douala, Cameroon](#), to promote capacity building in research and training. This workshop *Introduction to Orthogonal Polynomials and Applications*, in which 50 men and 10 women participated, was funded within the framework of the Volkswagen Foundation

Funding Initiative “Symposia and Summer Schools,” and organized by Mama Foupouagnigni (Center President of the African Institute for Mathematical Sciences, Cameroon) and Wolfram Koepf (University of Kassel), who is a leading expert in Computer Algebra.

After intensive preliminary training sessions on *Orthogonal Polynomials and Computer Algebra* (October 5–6, 2018) by Mama Foupouagnigni, Wolfram Koepf and their ex-PhD students (Salifou Mboutngam, Maurice Kenfack Nangho, Daniel Duviol Tcheutia, Patrick Njionou Sadjang and Merlin Mouafo Wouodjie), there were plenary talks and contributed talks (October 7–12, 2018). Plenary speakers presented the state of art and delivered training sessions in various aspects of orthogonal polynomials and applications. Plenary talks were given by:

- Walter Van Assche, KU Leuven, Belgium;
- Iván Area Carracedo, University of Vigo, Spain (his talk was canceled);
- Gaspard Bangerezako, University of Burundi, Burundi;
- Hamza Chaggara, University of Sousse, Tunisia;
- Mama Foupouagnigni, AIMS Cameroon & University of Yaounde I, Cameroon;
- Jeff Geronimo, Georgia Institute of Technology, Atlanta, USA;
- David Gómez-Ullate Oteiza, ICMAT–Institute of Mathematical Sciences, Spain;
- Mahouton Norbert Hounkonnou, University of Abomey–Calavi, Benin;
- Kerstin Jordaan, University of South Africa, South Africa;
- Wolfram Koepf, University of Kassel, Germany;
- Ana Loureiro, University of Kent, United Kingdom;
- Francisco (Paco) Marcellán Español, Universidad Carlos III de Madrid, Spain;
- Sergei Suslov, Arizona State University, USA; and,
- Luc Vinet, University of Montreal, Canada.

Apart from the plenary talks, there were contributed talks that gave opportunities to six young African researchers to present their findings and receive comments.

The opening ceremony took place on the fifth day (October 10) of the workshop. On the same day, there was a social event in the afternoon and participants took advantage to visit the city of Douala. The conference dinner was in the evening. Mama and his ex-PhD students seized the opportunity to wish Prof. Wolfram Koepf a happy 65<sup>th</sup> birthday, and to thank him for his support to African students over many years. Francisco Marcellán, Sergei Suslov, Walter Van Assche and many other people took the floor to tell their story about Mama, appreciate the initiative (workshop), or to advise young researchers to make friends and have new contacts, during this workshop, or to present at the next OPSFA conference. The last day of the workshop (October 12), Mama Foupouagnigni delivered a talk presenting AIMS (African Institute for Mathematical Sciences), that aims to promote Mathematical Sciences in Africa. The workshop ended with a ceremony during which Mary Bernadette Fultang Timchia, the COO of AIMS–Cameroon, offered personalized coffee cups to each of the trainers and plenary speakers. She also offered a bell to each plenary speaker to stop students making a noise when lecturing.

Through various lectures on many different topics, this workshop allowed young African researchers to be informed of recent developments in orthogonal polynomials and applications. It was also an opportunity for various African teams (South–Africa, Cameroon,

Tunisia, Algeria, Benin, Burundi, Kenya, Ethiopia, Niger, Nigeria, Rwanda, Ghana, Malawi, Chad, Gabon, Congo and Zambia) working in the field to meet each other and create contact for future collaborations. It helped participants from other fields of mathematics to discover the theory of orthogonal polynomial and its applications.

Maurice Kenfack Nangho  
University of Dschang, Cameroon

Topic #6 ——— OP – SF Net 25.6 ——— November 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 September and October 2018. This list has been separated into two categories.

### OP–SF Net Subscriber E–Prints

<http://arxiv.org/abs/1809.01259>

Sidorenko's conjecture for blow-ups  
David Conlon, Joonkyung Lee

<http://arxiv.org/abs/1809.01502>

Dihedral evaluations of hypergeometric functions with the Kleinian projective monodromy  
Raimundas Vidunas

<http://arxiv.org/abs/1809.02107>

The smallest singular values of the icosahedral group  
Charles F. Dunkl

<http://arxiv.org/abs/1809.02685>

Marking and shifting a part in partition theorems  
Kathleen O'Hara, Dennis Stanton

<http://arxiv.org/abs/1809.03033>

Primes in prime number races  
Jared Duker Lichtman, Greg Martin, Carl Pomerance

<http://arxiv.org/abs/1809.04327>

A quantum algebra approach to multivariate Askey–Wilson polynomials  
Wolter Groenevelt

<http://arxiv.org/abs/1809.04342>

An asymptotic expansion for the error term in the Brent–McMillan algorithm for Euler's constant  
R. B. Paris

<http://arxiv.org/abs/1809.04636>

Connection Coefficients for Higher–order Bernoulli and Euler Polynomials: A Random Walk Approach

Lin Jiu, Christophe Vignat

<http://arxiv.org/abs/1809.04948>

An asymptotic expansion for the expected number of real zeros of real random polynomials spanned by OPUC

Hanan Aljubran, Maxim L. Yattselev

<http://arxiv.org/abs/1809.05744>

Marcinkiewicz inequalities for entire functions in spaces with Hermite–Biehler weights  
Friedrich Littmann

<http://arxiv.org/abs/1809.06089>

Proofs and Reductions of Kanade and Russell’s partition identities

Kathrin Bringmann, Chris Jennings–Shaffer, Karl Mahlburg

<http://arxiv.org/abs/1809.06578>

Towards a symbolic summation theory for unspecified sequences

Peter Paule, Carsten Schneider

<http://arxiv.org/abs/1809.06902>

Exact scattering and bound states solutions for novel hyperbolic potentials with inverse square singularity

A. D. Alhaidari

<http://arxiv.org/abs/1809.07074>

Gaussian unitary ensembles with pole singularities near the soft edge and a system of coupled Painlevé XXXIV equations

Dan Dai, Shuai–Xia Xu, Lun Zhang

<http://arxiv.org/abs/1809.07084>

Numerical Implementation of Harmonic Polylogarithms to Weight  $w = 8$

J. Ablinger, J. Blümlein, M. Round, C. Schneider

<http://arxiv.org/abs/1809.07492>

Structural properties of multiple zeta values

Tanay Wakhare, Christophe Vignat

<http://arxiv.org/abs/1809.08124>

Reflection formulas for order derivatives of Bessel functions

J. L. González–Santander

<http://arxiv.org/abs/1809.08763>

Grassmann graphs, degenerate DAHA, and non–symmetric dual  $q$ –Hahn polynomials

Jae–Ho Lee

<http://arxiv.org/abs/1809.08794>

Asymptotics of a Gauss hypergeometric function with large parameters, IV: A uniform expansion

R. B. Paris

<http://arxiv.org/abs/1809.08973>

Analytic properties of some basic hypergeometric–Sobolev–type orthogonal polynomials

Roberto S. Costas–Santos, A. Soria–Lorente



<http://arxiv.org/abs/1809.09240>

Leading corrections to the scaling function on the diagonal for the two-dimensional Ising model

P. J. Forrester, J. H. H. Perk, A. K. Trinh, N. S. Witte

<http://arxiv.org/abs/1809.09440>

Relations among the Riemann zeta and Hurwitz zeta functions as well as their products

A. C. L. Ashton, A. S. Fokas

<http://arxiv.org/abs/1809.09705>

Bivariate Bannai–Ito polynomials

Jean–Michel Lemay, Luc Vinet

<http://arxiv.org/abs/1810.10128>

A Remark on the Arcsine Distribution and the Hilbert Transform

Ronald R. Coifman, Stefan Steinerberger

<http://arxiv.org/abs/1809.10130>

The error bounds of Gauss quadrature formulae for the modified weight functions of Chebyshev type

Ramon Orive, Aleksandar V. Pejcev, Miodrag M. Spalevic

<http://arxiv.org/abs/1809.10887>

The Transmutation Method and Boundary–Value Problems for Singular Differential Equations

V. V. Katrakhov, S. M. Sitnik

<http://arxiv.org/abs/1810.00741>

The local universality of Muttalib–Borodin biorthogonal ensembles with parameter  $\theta = \frac{1}{2}$

A. B. J. Kuijlaars, L. D. Molag

<http://arxiv.org/abs/1810.01134>

Asymptotics of a  ${}_3F_2$  hypergeometric function with four large parameters

R. B. Paris

<http://arxiv.org/abs/1810.01821>

Operator–valued zeta functions and Fourier analysis

Dorje C. Brody, Carl M. Bender

<http://arxiv.org/abs/1810.01823>

A Non–Linear Difference Equation for Calculation of the Zeros of the Riemann Zeta–Function on the Critical Line

G. B. da Silva, R. V. Ramos

<http://arxiv.org/abs/1810.02946>

Voros Coefficients for the Hypergeometric Differential Equations and Eynard–Orantin’s Topological Recursion – Part II : For the Confluent Family of Hypergeometric Equations

Kohei Iwaki, Tatsuya Koike, Yumiko Takei

<http://arxiv.org/abs/1810.04568>

Inequalities for integrals of the modified Struve function of the first kind II

Robert E. Gaunt

<http://arxiv.org/abs/1810.06372>

Index transforms with the squares of Kelvin functions  
Semyon Yakubovich

<http://arxiv.org/abs/1810.06497>

Elementary Polynomial Identities Involving  $q$ -Trinomial Coefficients  
Alexander Berkovich, Ali K. Uncu

<http://arxiv.org/abs/1810.06539>

The  $d$ -dimensional softcore Coulomb potential and the generalized confluent Heun equation  
Richard L. Hall, Nasser Saad, Kyle R. Bryenton

<http://arxiv.org/abs/1810.07061>

Direct and Inverse Results for Multipoint Hermite-Pade Approximants  
N. Bosuwan, G. Lopez Lagomasino, Y. Zaldivar Gerpe

<http://arxiv.org/abs/1810.07818>

A Riemann-Hilbert Problem Approach to Periodic Infinite Gap Hill Operators and the Korteweg-de Vries Equation  
Kenneth T-R. McLaughlin, Patrik V. Nabelek

<http://arxiv.org/abs/1810.08535>

On Uniform Approximations of Normal Distributions By Jacobi Theta Functions  
Ruiming Zhang

<http://arxiv.org/abs/1810.09793>

Operational Methods in the Study of Sobolev-Jacobi Polynomials  
Nicolas Behr, Giuseppe Dattoli, Gérard H. E. Duchamp, Silvia Licciardi, Karol A. Penson

<http://arxiv.org/abs/1810.10806>

Matrix Bailey lemma and the star-triangle relation  
K. Yu. Magadov, V. P. Spiridonov

<http://arxiv.org/abs/1810.11096>

Hyper  $b$ -ary expansions and Stern polynomials  
Tanay Wakhare, Caleb Kendrick, Matthew Chung, Catherine Cassell, Stefano Santini, William Colin Mosley, Anand Raghu, Robert Morrison, Iman Schurman, Timothy Kevin Beal, Matthew Patrick

<http://arxiv.org/abs/1810.12048>

Refined  $q$ -Trinomial Coefficients and Two Infinite Hierarcies of  $q$ -Series Identities  
Alexander Berkovich, Ali K. Uncu

<http://arxiv.org/abs/1810.12701>

Two Questions about the Fractional Counting of Partitions  
Doron Zeilberger, Noam Zeilberger

<http://arxiv.org/abs/1810.13357>

Poncelet's Theorem, Paraorthogonal Polynomials and the Numerical Range of Compressed Multiplication Operators  
Andrei Martínez-Finkelshtein, Brian Simanek, Barry Simon

## Other Relevant OP–SF E–Prints

<http://arxiv.org/abs/1809.00122>

Meromorphic Solution of the Degenerate Third Painlevé Equation Vanishing at the Origin  
A. V. Kitaev

<http://arxiv.org/abs/1809.00473>

Minimal Soft Lattice Theta Functions  
Laurent Bétermin

<http://arxiv.org/abs/1809.01237>

Generalized finite polylogarithms  
Marina Avitabile, Sandro Mattarei

<http://arxiv.org/abs/1809.02003>

Normal forms for Kummer surfaces  
Adrian Clingher, Andreas Malmendier

<http://arxiv.org/abs/1809.02311>

A Riemann–Hilbert Approach to the Heun Equation  
Boris Dubrovin, Andrei Kapaev

<http://arxiv.org/abs/1809.02341>

An Anderson–Chebyshev Mixing Method for Nonlinear Optimization  
Zhize Li, Jian Li

<http://arxiv.org/abs/1809.02454>

New approach to periodic orbit theory of spectral correlations  
Petr Braun, Daniel Waltner

<http://arxiv.org/abs/1809.02757>

New generalized Mehler–Fock transformations and applications to the resolvent equation  
Eren Ucar

<http://arxiv.org/abs/1809.02829>

Fourier Expansion of the Riemann zeta function and applications  
Lahoucine Elaissaoui, Zine El–Abidine Guennoun

<http://arxiv.org/abs/1809.02856>

New Approximation method for the computation of particular values of polylogarithms  
Abdalla M. Aboarab

<http://arxiv.org/abs/1809.03263>

High order algorithms for Fokker–Planck equation with Caputo–Fabrizio fractional derivative  
Minghua Chen, Jiankang Shi, Weihua Deng

<http://arxiv.org/abs/1809.03339>

On a generalization of starlike functions  
Sarita Agrawal

<http://arxiv.org/abs/1809.03731>

Nonlinear stationary subdivision schemes that reproduce trigonometric functions  
Rosa Donat, Sergio López-Ureña

<http://arxiv.org/abs/1809.03761>

Asymptotic joint spectra of Cartesian powers of strongly regular graphs and bivariate Charlier–Hermite polynomials  
John Vincent S. Morales, Nobuaki Obata, Hajime Tanaka

<http://arxiv.org/abs/1809.03876>

Nuclearity for Fourier integral operators in  $L^p$ -spaces  
Duván Cardona

<http://arxiv.org/abs/1809.03933>

A Short Note on Integral Transformations and Conversion Formulas for Sequence Generating Functions  
Maxie D. Schmidt

<http://arxiv.org/abs/1809.04743>

Inverses of generators of integrated fractional resolvent operator functions  
Miao Li, Javier Pastor, Sergey Piskarev

<http://arxiv.org/abs/1809.05327>

Jacob's ladders and grafting of the complete hybrid formulas into  $\zeta$ -synergetic meta-functional equation for Riemann's zeta-function  
Jan Moser

<http://arxiv.org/abs/1809.05416>

On the differential transcendence of the elliptic hypergeometric functions  
Carlos E. Arreche, Thomas Dreyfus, Julien Roques

<http://arxiv.org/abs/1809.05607>

Indefinite Integration Operators Identities and their Approximations  
Frank Stenger

<http://arxiv.org/abs/1809.05690>

Mock modular forms whose shadows are Eisenstein series of integral weight  
Sebastián Herrero, Anna-Maria von Pippich

<http://arxiv.org/abs/1809.06158>

Generalized Riemann Hypothesis, Time Series and Normal Distributions  
André LeClair, Giuseppe Mussardo

<http://arxiv.org/abs/1809.06469>

Obstacle problems generated by the estimates of square function  
I. Holmes, A. Volberg

<http://arxiv.org/abs/1809.06512>

Applications of third order differential subordination and superordination involving generalized Struve function  
P. Gochhayat, A. Prajapati

<http://arxiv.org/abs/1809.06586>

Two converse theorems for Maass forms

Michael Neururer, Thomas Oliver

<http://arxiv.org/abs/1809.06921>

Special values of derivatives of  $L$ -series and generalized Stieltjes constants

M. Ram Murty, Siddhi Pathak

<http://arxiv.org/abs/1809.07035>

Riemann–Hilbert method and soliton solutions in the system of two–component Hirota equations

Fang Fang, Beibei Hu, Ling Zhang, Ning Zhang

<http://arxiv.org/abs/1809.07268>

Long–term analysis of exponential integrators for highly oscillatory conservative systems

Bin Wang, Jiyong Li, Yonglei Fang

<http://arxiv.org/abs/1809.07298>

Periodic Functions, Lattices and Their Projections

Isabel S. Labouriau, Eliana M. Pinho

<http://arxiv.org/abs/1809.07370>

Generalized multiple zeta values over number fields I

Xiaohua Ai

<http://arxiv.org/abs/1809.07466>

The sharp Remez–type inequality for even trigonometric polynomials on the period

Tamás Erdélyi

<http://arxiv.org/abs/1809.07479>

Analysis on the Integrability of the Rayleigh–Plesset Equation with Painlevé Test and Lie Symmetry Groups

Lang Xia

<http://arxiv.org/abs/1809.07660>

Biorthogonal Extended Krylov Subspace Methods

Niel Van Buggenhout, Marc Van Barel, Raf Vandebril

<http://arxiv.org/abs/1809.07885>

Meromorphic Painlevé III transcendents and the Joukowski correspondence

Andrea E. V. Ferrari, Lionel Mason

<http://arxiv.org/abs/1809.08051>

The generalised Cauchy derivative as a principal value of the Grünwald–Letnikov fractional derivative for divergent expansions

Abhimanyu Pallavi Sudhir

<http://arxiv.org/abs/1809.08184>

Higher derivatives of the inverse tangent function and a summation formula involving binomial coefficients

Jan–David Hardtke

<http://arxiv.org/abs/1809.08283>

Analysis and improvement of direct sampling method in the mono-static configuration  
Sangwoo Kang, Marc Lambert, Won-Kwang Park

<http://arxiv.org/abs/1809.08867>

Middle multiplicative convolution and hypergeometric equations  
Nicolas Martin

<http://arxiv.org/abs/1809.09047>

On  $k$ -abelian Equivalence and Generalized Lagrange Spectra  
Jarkko Peltomäki, Markus A. Whiteland

<http://arxiv.org/abs/1809.09199>

Time-changes preserving zeta functions  
Sawian Jaidee, Patrick Moss, Tom Ward

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A Comprehensive Subclass of Bi-Univalent Functions Associated with Chebyshev Polynomials of the Second Kind  
Feras Yousef, Somaia Alroud, Mohamed Illafe

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Power mean of the Hurwitz zeta function  
A. C. L. Ashton

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Riemann-Hilbert approach for a mixed coupled nonlinear Schrödinger system and its soliton solutions  
Fang Fang, Beibei Hu, Ling Zhang, Ning Zhang

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George Savvidy, Konstantin Savvidy

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Quasi-asymptotically almost periodic functions and applications  
Marko Kostic

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Some Double Sums Involving Ratios of Binomial Coefficients Arising From Urn Models  
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Euler products of Selberg zeta functions in the critical strip  
Ikuya Kaneko, Shin-ya Koyama

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Multivariate orthogonal polynomials: quantum decomposition, deficiency rank and support of measure

Ameur Dhahri, Nobuaki Obata, Hyun Jae Yoo

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Multidomain spectral method for the Gauss hypergeometric function

S. Crespo, M. Fasoldini, C. Klein, N. Stoilov, C. Vallée

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Roma Kacinskaite, Kohji Matsumoto

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Integral relations associated with the semi-infinite Hilbert transform and applications to singular integral equations

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Weak limits of the measures of maximal entropy for Orthogonal polynomials

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Soviet pioneers of fractional calculus and its application: III. Timothy D. Shermergor

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A family of vector-valued quantum modular forms of depth two

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Rational approximations to the zeta function II

Keith M. Ball

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Adrian Stefan Carstea, Tomoyuki Takenawa

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The inverse problem for linearly related orthogonal polynomials: General case

A. Peña, M. L. Rezola

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Jacob's ladders and new synergetic formula generating infinite set of  $\zeta$ -cooperative three-parametric invariants

Jan Moser

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Vsevolod Gubarev

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Non vanishing of theta functions and sets of small multiplicative energy  
Marc Munsch

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Quantum modular forms and singular combinatorial series with distinct roots of unity  
Amanda Folsom, Min–Joo Jang, Sam Kimport, Holly Swisher

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Waldemar Hebisch

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A space–time pseudospectral discretization method for solving diffusion optimal control problems with two–sided fractional derivatives  
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Victor Enolski, Yaacov Kopeliovich, Shaul Zemel

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Approximations in  $L^1$  with convergent Fourier series  
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Heisenberg uniqueness pairs for the Fourier transform on the Heisenberg group  
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New features of the first eigenvalue on negatively curved spaces  
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On the differential equation for the Sobolev–Laguerre polynomials  
Clemens Markt

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Generalised hypergeometric ensembles of random graphs: the configuration model as an urn problem  
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Integral Transform Methods in Goodness-of-Fit Testing, I: The Gamma Distributions  
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Disjointness of Möbius from asymptotically periodic functions  
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Sharp Hardy's type inequality for Laguerre expansion  
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Fractional supersymmetry algebra and lacunary Hermite polynomials  
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Approximate functional equation and upper bounds for the Barnes double zeta-function  
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Factorization Theorems for Relatively Prime Divisor Sums, GCD Sums and Generalized Ramanujan Sums  
Hamed Mousavi, Maxie D. Schmidt

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A short note on  $q$ -analogue of modified Stancu-Beta operators  
Preeti Sharma Joshi, Ghanshyam Singh Rathore

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C. Calderón, Y. González, I. Pacharoni, S. Simondi, I. Zurrián

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Pair Correlation Estimates for the Zeros of the Zeta-Function via Semidefinite Programming  
Andrés Chirre, Felipe Gonçalves, David de Laat

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On the Atkin and Swinnerton-Dyer type congruences for some truncated hypergeometric  ${}_1F_0$  series  
Yong Zhang, Hao Pan

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Valery Gritsenko, Haowu Wang

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Regular poles of local  $L$ -functions for  $\mathrm{GSp}(4)$  with respect to split Bessel models (the sub-regular cases)  
Mirko Rösner, Rainer Weissauer

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Green's function for the Laplace-Beltrami operator on surfaces with a non-trivial Killing vector field and its application to potential flows  
Yuuki Shimizu

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A Dynamical Systems Approach to The Fourth Painlevé Equation

Jeremy Schiff, Michael Twiton

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Two classical properties of the Bessel quotient  $I_{\nu+1}/I_{\nu}$  and their implications in PDE's

Nicola Garofalo

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Fatou–Julia dichotomy of matrix–valued polynomials

Ratna Pal

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Hypergeometric function and Modular Curvature I. –Hypergeometric functions in Heat Coefficients

Yang Liu

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Algebraic solution of weighted minimax single–facility constrained location problems

Nikolai Krivulin

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A note on the zeros of generalized Hurwitz zeta functions

Giamila Zaghloul

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Stationary distributions of the multi–type ASEP

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Bowman–Bradley type theorem for finite multiple zeta values in  $\mathcal{A}_2$

Hideki Murahara, Tomokazu Onozuka, Shin–ichiro Seki

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Victor Buchstaber, Victor Enolski, Dmitry Leykin

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Su Hu, Min–Soo Kim

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Regularized integral representations of the reciprocal Gamma function

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Fekete–Szegő inequality of bi–starlike and bi–convex functions of order  $b$  associated with symmetric  $q$ –derivative in conic domains

R. B. Sharma, K. Rajya Laxmi, N. Magesh

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On the Fourier transform of regularized Bessel functions on complex numbers and Beyond  
Endoscopy over number fields  
Zhi Qi

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Lens Generalisation of  $\tau$ -functions for the Elliptic Discrete Painlevé Equation  
Andrew P. Kels, Masahito Yamazaki

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Dimension-wise Multivariate Orthogonal Polynomials in General Probability Spaces  
Sharif Rahman

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Spectral approximation of a variable coefficient fractional diffusion equation in one space  
dimension  
Xiangcheng Zheng, V. J. Ervin, Hong Wang

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Noninteracting fermions in a trap and random matrix theory  
David S. Dean, Pierre Le Doussal, Satya N. Majumdar, Gregory Schehr

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One-Step  $G$ -Unimprovable Numbers  
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On the 2D Dirac oscillator in the presence of vector and scalar potentials in the cosmic  
string spacetime in the context of spin and pseudospin symmetries  
Daniel F. Lima, Fabiano M. Andrade, Luis B. Castro, Cleverson Filgueiras, Edilberto O. Silva

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Volterra chain and Catalan numbers  
V. E. Adler, A. B. Shabat

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One-sided fractional derivatives, fractional Laplacians, and weighted Sobolev spaces  
P. R. Stinga, M. Vaughan

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Winding of a Brownian particle around a point vortex  
Huanyu Wen, Jean-Luc Thiffeault

## Topic #7 ——— OP – SF Net 25.6 ——— November 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 26.1 should be sent by January 1, 2019.

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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).

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## Topic #8 ——— OP – SF Net 25.6 ——— November 15, 2018

From: OP–SF Net Editors

Subject: Thought of the Month by **Plato**

Mathematics is like checkers in being suitable for the young, not too difficult, amusing, and without peril to the state.

**Plato** (ca 429–347 BC)