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

http://math.nist.gov/opsf

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Topics:

Calendar of Events:

July 10-19, 2017
Foundations of Computational Mathematics,
Barcelona, Spain
http://www.ub.edu/focm2017/index.html

August 25-29, 2017
Painlevé Equations and Applications: A Workshop in Memory of A. A. Kapaev
Ann Arbor, Michigan, USA
http://lsa.umich.edu/math/centers-outreach/mcaim/painleve-equations-workshop.html

September 18-22, 2017
Integrable systems, symmetries, and orthogonal polynomials
(Celebrating Peter Clarkson's and Liz Mansfield's 60th birthdays)
Instituto de Ciencias Matemáticas (ICMAT) Madrid, Spain
https://www.icmat.es/RT/optrim/conference/index.php

October 23–27, 2017
II Orthonet School
Orthogonal polynomials and Special functions in Approximation Theory and Mathematical Physics, Madrid, Spain
https://www.icmat.es/RT/optrim/school/index.php

November 30–December 2, 2017
International Conference Approximation and Computation – Theory and Applications (Dedicated to Professor Walter Gautschi on the Occasion of his 90th Anniversary)
Belgrade, Serbia
http://easychair.org/smart-program/ACTA2017/Home.html

Summer, 2019
OPSFA–15 International Symposium
Linz, Austria.

Topic #1 ——— OP – SF Net 24.4 ——— July 15, 2017

From: Francisco Jose Marcellán Español (pacomarc@ing.uc3m.es)
Subject: Announcement: II Orthonet School in Madrid, Spain

Dates: October 23–27, 2017

ICMAT and the Orthonet network organize the Second Orthonet School as part of the Thematic program Orthogonal Polynomials and Special Functions in Approximation Theory and Mathematical Physics. The School will take place at ICMAT (Madrid, Spain) from October 23–27, 2017, and will consist in four advanced courses in orthogonal polynomials, approximation theory, and related subjects taught by the following major international experts in the subject.

- Arieh Iserles (University of Cambridge, UK)
- Robert Milson (Dalhouise University, Canada)
- Walter Van Assche (KU Leuven, Belgium)
- Luis Velázquez (Universidad de Zaragoza, Spain)

The First Orthonet School took place in Sevilla, Spain from 14–18 November, 2016.

The number of students will be limited to 25 participants to ensure a good amount of interaction among them and with the professors. A limited number of grants that cover accommodation and meals during the school are now available. In order to apply for one of these grants, please fill in the following form before May 25th at the web page https://www.icmat.es/RT/optrim/school/index.php.

Topic #2 ——— OP – SF Net 24.4 ——— July 15, 2017

From: Andrei Martínez-Finkelshtein (andrei@ual.es)
Subject: Report on ICSF2017 at City University of Hong Kong, China

The International Conference on Special Functions: Theory, Computation, and Applications 2017 took place at the City University of Hong Kong at the beginning of June, organized by Mourad Ismail and Roderick Wong, together with Dan Dai and Yutian Li. A motivation was the celebration of the 20th anniversary of Liu Bie Ju Centre for Mathematical Sciences.

Along these years, the Centre has hosted many visitors and organized a large number of conferences. Perhaps because of that something that apparently started as a middle-size workshop turned out a large conference with 10 plenary speakers, 56 invited speakers, and 16 contributed speakers, organized in 2 parallel sessions.

Distinct topics were covered in five days. In particular, the plenary lectures were:

- *Bruce Berndt* (University of Illinois at Urbana-Champaign, USA), gave an opening talk about remarkable mathematical identities, many tied to the name of Ramanujan.
- *Persi Diaconis* (Stanford University, USA) illustrated how some of the identities involving classical orthogonal polynomials can be used in probability and statistics.
- *Arno Kuijlaars* (Katholieke Universiteit Leuven, Belgium) explained how the Meijer G-functions appear naturally in the description of eigenvalue and singular value distributions of products of random matrices.
- *Doron Lubinsky* (Georgia Institute of Technology, USA) showed us the Dark side (well, the spurious side) of the rational interpolation and discussed the status of the Baker-Gammel-Wills conjecture about convergence of Padé approximants.
- *Adri Olde Daalhuis* (University of Edinburgh, UK) gave a talk about exponential asymptotics and resurgence (a technique that enables the divergent tails to be decoded to yield the exponentials responsible for the divergence of asymptotic series), as well as about smoothing of higher order Stokes phenomena.
- *Eric Rains* (California Institute of Technology, USA) spoke about the (noncommutative) geometry of difference equations, where gave his approach to understanding moduli spaces of difference equations as a key to a unified approach to special functions.
- *Jasper Stokman*'s (University of Amsterdam, The Netherlands) lecture was about the nonsymmetric Macdonald interpolation polynomials and interpolation function, relatee to the spectral theory of Cherednik operators.
- *Walter Van Assche* (KU Leuven, Belgium) guided us through the main step of the derivation of the asymptotics of Hermite-Padé polynomials for a Nikishin system via the Riemann-Hilbert analysis.
- *Luc Vinet* (Université de Montreal, Canada) explained the recent advances in the the tridiagonalization approach to the analysis of special functions and orthogonal polynomial for the Askey-type hierarchies of orthogonal and basic orthogonal polynomials and special functions.
- Finally, *Barry Simon* (California Institute of Technology, USA) gave two talks. The first one was about spectral theory sum rules and meromorphic Herglotz functions, and about how to obtain these sum rules using large deviations for random matrices. The second talk, scheduled for Wednesday afternoon, was entitled "Tales of our Forefathers". It was announced as a public lecture and had a large audience. Barry presented a great number of amusing, funny or curious facts from famous mathematicians' lives (as he puts it, "mathematical gossips"), gathered in topics such as "Family matters" or "Educational follies".

We cannot forget about the social event, the conference banquet organized at the exclusive Happy Valley Racecourse. Besides the great food, I could see other angles of many colleagues who could not avoid the temptation to bet on horses. Alas, I am not aware of anybody winning that day.

Figure 1: Roderick Wong addresses attendees.

The organization of the event was superb. The problem with that is this is no news anymore, and the surprise threshold for the organizational level of the conferences at CityU keeps raising. But the organizers still managed to impress us. As an example: the signs on each parallel session doors with the name of the current speaker, the title of the talk and the forthcoming talks were replaced almost in real time!

Figure 2: Conference building at CityU.

The local organizers, whose hard work and dedication were essential to the flawless running of the event, deserve special mention. Among them the extreme efficiency and willingness to help of Ms. Sophie Xie was subject of acknowledgment at almost every talk at the conference. Finally, the organizers did a marvelous job bringing together such an amazing group of brilliant mathematicians. I am looking forward for the celebration of the whatever next anniversary of Liu Bie Ju Centre for Mathematical Sciences.

Topic #3 ——— OP - SF Net 24.4 ——— July 15, 2017

From: Walter Van Assche (Walter.VanAssche@wis.kuleuven.be)
Subject: The Canterbury Tales: OPSFA-14 at the University of Kent, Canterbury, UK

The 14th International Symposium on *Orthogonal Polynomials, Special Functions and Applications* was held at the University of Kent in Canterbury, UK. Some 156 participants took a pilgrimage to the city of Canterbury to tell a tale or to listen to one of the many interesting tales by the plenary lecturers and the contributed speakers. The organizers have succeeded to set up a diverse collection of plenary talks, both in scope and gender, reflecting recent activity in our field. Orthogonal polynomials were still prominent, with Chebyshev polynomials, exceptional orthogonal polynomials, Jacobi matrices, multivariate orthogonal polynomials and cubature and combinatorics of Koornwinder polynomials,

Figure 3: Group Photo at OPSFA-14.

but other special functions also made their appearance. In particular Bessel functions, rational solutions of Painlevé equations, the Riemann zeta function, and Airy functions. Most notably there was a lot of emphasis on applications, more so than previous OPSFA meetings: approximation on the real line, cubature on regular polygons, random matrix theory, geometry of Painlevé equations, non-smooth waves, point processes and numerical methods.

Figure 4: Plenary Speakers, 2017 Szegő Prize Winner and Organizers at OPSFA-14. Top Row, left to right: Jonathan Breuer, Peter Miller, Alexander Its, Arno Kuijlaars, Tom Trogdon, Jacek Szmigielski, and David Gómez-Ullate. Bottom row: Evelyne Hubert, Arieh Iserles, Margit Rösler, Nina Snaith, Marta Mazzocco, Ana Loureiro and Peter Clarkson. Missing, Sylvie Corteel.

Parallel sessions with contributed talks were planned in the afternoons. It was difficult to choose among the four parallel sessions, and it would have been helpful to have the titles in the timetable and not only the names. But this is about the only criticism that I have, because otherwise everything was organized so smoothly and efficient by the local organizers. Peter Clarkson, Ana Loureiro et al. earn a great deal of thanks for their impressive work.

A very interesting idea of the organizers was to include a public lecture on Tuesday evening. Andrei Martínez Finkelshtein gave a very entertaining insight into the mathematics of the eye, in particular medical diagnostic analysis and medical imaging of the

cornea. Did you know that lenses of a shark are the best for replacing lenses in our eyes? That night I wondered what they do with the rest of the shark.

The Gábor Szegő prize was handed over to Thomas Trogdon for *his versatility in combining orthogonal polynomials and special functions in new and creative ways to deduce results in a variety of fields, such as rational approximation, random matrices, and Riemann-Hilbert problems*. Tom gave a splendid lecture about *The high oscillation of special functions* and he proved that he really deserved the fourth Gábor Szegő prize. I thought it was one of the best talks of the conference. There were also 11 posters with a prize for the best two posters. Juan Carlos García Ardila (Universidad Carlos III de Madrid) and Diego Ruiz-Antolín (Universidad of Cantabria) both received the NIST Handbook of Mathematical Functions, and I hope that heavy book did not make their luggage overweight on their trip back to Spain.

Figure 5: Thomas Trogdon accepting the Gábor Szegő prize from Walter Van Assche.

The OPSFA steering committee announced that the next OPSFA meeting will take place in Austria in 2019 (that is two years from now, not next year), probably late July. The local organizers are from the RISC group (Research Institute for Symbolic Computation) of the Johannes Kepler University in Linz, and most likely the conference will be near Linz in the Fachhochschule Hagenberg. More information will become available later.

As usual, it was always nice to meet so many of our friends at the OPSFA meeting: old friends (Ted Chihara was probably the oldest participant) and many new friends; most of the students attending the OPSF summer school the week before were also participants of OPSFA-14. I'm looking forward to the meeting in Austria.

Topic #4 ——— OP - SF Net 24.4 ——— July 15, 2017

From: Oksana Bihun (obihun@uccs.edu)
Subject: Participant Report on OPSF-S7 and OPSFA-14 in Canterbury, UK

Students, young researchers and experts in orthogonal polynomials, special functions, their applications, and related fields gathered for a workshop (June 26-30, 46 participants supported by the London Mathematical Society, support for 2 participants was provided by OPSF-S6) and a symposium (July 3-7, 156 participants) at the University of Kent in Canterbury, UK.

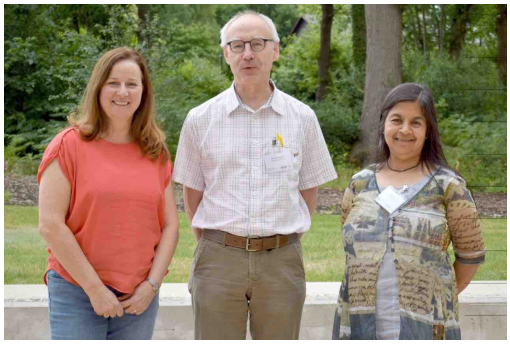

Figure 6: OPSF-S7 Lectures: Kerstin Jordaan, Walter Van Assche and Nalini Joshi.

The workshop offered three series of lectures on properties of orthogonal polynomials (Jordaan), multiple orthogonal polynomials (Van Assche) and

discrete Painlevé equations (Joshi). The mix of topics was well balanced with respect to the audience of graduate students, postdocs and researchers. Their experience was enhanced by planned tutorials, spontaneous dinner discussions, and studies of the lecture slides that were promptly posted online.

The symposium featured plenary lectures that highlighted several trends in the OPSFA area: numerical computation (Hubert, Iserles), special functions that arise in the context of dynamical systems (Its, Miller, Szmigielski, Trogdon – 2017 Szegő prize winner), random matrix theory (Breuer, Kuijlaars, Snaith), geometric (Mazzocco) and combinatorial approaches (Corteel), exceptional orthogonal polynomials (Gómez-Ullate) and multivariate Bessel functions (Rösler). Many more interesting developments were highlighted during (a non-dispersive number of) parallel sessions and in posters.

Figure 7: Group Photo at the OPSF-S7 Summer School.

Both the workshop and the symposium took place at the new Sibson building of the University of Kent, with all the talks conveniently located in the vicinity of the main atrium. The diverse body of participants mingled during the coffee breaks and lunches provided to them. A good portion of the symposium was comprised of exceptionally good, hour-long plenary talks with participants from different sub-areas offering questions and comments. These arrangements facilitated ample opportunity for interaction and meaningful discussions. The open atmosphere led to exchanges of papers and plans for future collaborations.

A special OPSFA-14 issue of SIGMA will feature new developments in the field of OPSF. It was announced here that the OPSFA-15 Symposium will be held in Linz, Austria.
Auf Wiedersehen!

Topic #5 ——— OP - SF Net 24.4 ——— July 15, 2017

From: Peter Clarkson (P.A.Clarkson@kent.ac.uk)
Subject: Special Issue of SIGMA on OPSFA-14

The journal Symmetry, Integrability and Geometry: Methods and Applications (SIGMA) will publish a special issue related to OPSFA-14. The papers in the special issue will highlight the latest developments in the field of Orthogonal Polynomials and Special Functions.

Participants of the OPSFA-14 symposium and authors whose work fits into the field are invited to submit papers for this SIGMA special issue. Both original research articles and review papers are welcome. There are no paper length limits for the submitted works. **Deadline for the submission is January 31st, 2018.**

The Guest Editors for this special issue of SIGMA are:

- Peter Clarkson (University of Kent, Canterbury, UK)
- Erik Koelink (Radboud University Nijmegen, The Netherlands)
- Ana Loureiro (University of Kent, Canterbury, UK)
- Walter Van Assche (University of Leuven, Belgium)

For details on how to submit a manuscript to the special issue, see the following link:
http://www.emis.de/journals/SIGMA/OPSFA2017.html.

Topic #6 ——— OP - SF Net 24.4 ——— July 15, 2017

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 2017. This list has been separated into two categories.

OP-SF Net Subscriber E-Prints

http://arxiv.org/abs/1705.00445
Geometric description of discrete power function associated with the sixth Painlevé equation
Nalini Joshi, Kenji Kajiwara, Tetsu Masuda, Nobutaka Nakazono, Yang Shi

http://arxiv.org/abs/1705.01860
A higher rank extension of the Askey-Wilson Algebra
Sarah Post, Anthony Walter

http://arxiv.org/abs/1705.01190
Uniform asymptotic expansions for Laguerre polynomials and related confluent hypergeometric functions
T. M. Dunster, A. Gil, J. Segura

http://arxiv.org/abs/1705.01663
Supercongruences for rigid hypergeometric Calabi-Yau threefolds
Ling Long, Fang-Ting Tu, Noriko Yui, Wadim Zudilin

http://arxiv.org/abs/1705.01980
Dynamic ASEP, duality and continuous q^{-1}-Hermite polynomials
Alexei Borodin, Ivan Corwin

http://arxiv.org/abs/1705.02057
Polynomials Whose Coefficients Coincide with Their Zeros
Oksana Bihun, Damiano Fulghesu

http://arxiv.org/abs/1705.02493
Applications of the Stieltjes and Laplace transform representations of the hypergeometric functions
D. B. Karp, E. G. Prilepkina

http://arxiv.org/abs/1705.03627
Entropic functionals of Laguerre and Gegenbauer polynomials with large parameters
N. M. Temme, I. V. Toranzo, J. S. Dehesa

http://arxiv.org/abs/1705.06451
Lax integrability and the peakon problem for the modified Camassa-Holm equation
Xiangke Chang, Jacek Szmigielski

http://arxiv.org/abs/1705.06767
Comment on 'Comment on "Hamiltonian for the zeros of the Riemann zeta function"'
Carl M. Bender, Dorje C. Brody, Markus P. Müller

http://arxiv.org/abs/1705.07504
On some polynomials and series of Bloch-Polyá Type
Alexander Berkovich, Ali K. Uncu

http://arxiv.org/abs/1705.08167
Differential operator for discrete Gegenbauer–Sobolev orthogonal polynomials: eigenvalues and asymptotics
Lance L. Littlejohn, Juan F. Mañas-Mañas, Juan J. Moreno-Balcázar, Richard Wellman

http://arxiv.org/abs/1705.08482
New separated polynomial solutions to the Zernike system on the unit disk and interbasis expansion
George S. Pogosyan, Kurt Bernardo Wolf, Alexander Yakhno

http://arxiv.org/abs/1705.08751
A Dirac equation on the two-sphere: the S_3 Dirac-Dunkl operator symmetry algebra
Hendrik De Bie, Roy Oste, Joris Van der Jeugt

http://arxiv.org/abs/1705.09221
Hypergeometric and basic hypergeometric series and integrals associated with root systems
Michael J. Schlosser

http://arxiv.org/abs/1705.09461
Spectral edge behavior for eventually monotone Jacobi and Verblunsky coefficients
Milivoje Lukic

http://arxiv.org/abs/1705.10095
Heine's method and A_n to A_m transformation formulas
Gaurav Bhatnagar

http://arxiv.org/abs/1705.09737
An embedding of the Bannai-Ito algebra in $\mathcal{U}(\mathfrak{osp}(1,2))$ and -1 polynomials
Pascal Baseilhac, Vincent X. Genest, Luc Vinet, Alexei Zhedanov

http://arxiv.org/abs/1705.10193
Asymptotic behaviour of the Christoffel functions on the Unit Ball in the presence of a Mass on the Sphere
Clotilde Martínez, Miguel A. Piñar

http://arxiv.org/abs/1706.00165
Woon's tree and sums over compositions
C. Vignat, T. Wakhare

http://arxiv.org/abs/1706.00606
On generalized Stieltjes functions
Stamatis Koumandos, Henrik L. Pedersen

http://arxiv.org/abs/1706.00750
Shuffle-compatible permutation statistics
Ira M. Gessel, Yan Zhuang

http://arxiv.org/abs/1706.01927
Matrix elements of irreducible representations of $\mathrm{SU}(n+1)\times\mathrm{SU}(n+1)$ and multivariable matrix-valued orthogonal polynomials
Erik Koelink, Maarten van Pruijssen, Pablo Román

http://arxiv.org/abs/1706.01928
On fractional powers of the Bessel operator on a semiaxis
Sergey Sitnik, Elina Shishkina

http://arxiv.org/abs/1706.02503
Reciprocal of the First hitting time of the boundary of dihedral wedges by a radial Dunkl process
Nizar Demni

http://arxiv.org/abs/1706.02617
Stochastic LU factorizations, Darboux transformations and urn models
F. Alberto Grünbaum, Manuel D. de la Iglesia

http://arxiv.org/abs/1706.02811
Symmetric Contours and Convergent Interpolation
Maxim L. Yattselev

http://arxiv.org/abs/1706.03055
Labeled plane binary trees and Schur-positivity
Ira M. Gessel, Sean Griffin, Vasu Tewari

http://arxiv.org/abs/1706.03242
On Freud-Sobolev type orthogonal polynomials
Luis E. Garza, Edmundo J. Huertas, Francisco Marcellán

http://arxiv.org/abs/1706.05194
The spectral expansion approach to index transforms and connections with the theory of diffusion processes
Rúben Sousa, Semyon Yakubovich

http://arxiv.org/abs/1706.05363
A generalized modified Bessel function and a higher level analogue of the theta transformation formula
Atul Dixit, Aashita Kesarwani, Victor H. Moll (with an Appendix by Nico M. Temme)

http://arxiv.org/abs/1706.05706
Refined interlacing properties for zeros of paraorthogonal polynomials on the unit circle
K. Castillo, J. Petronilho

http://arxiv.org/abs/1706.05709
On monotonicity of zeros of paraorthogonal polynomials on the unit circle
K. Castillo

http://arxiv.org/abs/1706.08655
Fourth order superintegrable systems separating in Polar Coordinates. I. Exotic Potentials
Adrian M. Escobar-Ruiz, J. C. López Vieyra, P. Winternitz

http://arxiv.org/abs/1706.08039
Fractional Calculus and certain integrals of Generalized multiindex Bessel function
K. S. Nisar, S. D. Purohit, R K. Parmar

http://arxiv.org/abs/1706.09103
Asymptotics for polynomials orthogonal in an indefinite metric
Maxim Derevyagin, Brian Simanek

http://arxiv.org/abs/1706.09474
New analytic properties of nonstandard Sobolev-type Charlier orthogonal polynomials
Edmundo J. Huertas, Anier Soria-Lorente

Other Relevant OP-SF E-Prints

http://arxiv.org/abs/1705.00048
On the sub-Gaussianity of the Beta and Dirichlet distributions
Olivier Marchal, Julyan Arbel

http://arxiv.org/abs/1705.00277
Differential operators, radial parts and a one-parameter family of hypergeometric functions of type BC
E. K. Narayanan, A. Pasquale

http://arxiv.org/abs/1705.00853
Relations among Some Conjectures on the Möbius Function and the Riemann Zeta-Function
Shōta Inoue

http://arxiv.org/abs/1705.00976
On the complete perturbative solution of one-matrix models
A. Mironov, A. Morozov

http://arxiv.org/abs/1705.00979
Aerodynamic noise generated by finite porous extensions to rigid trailing edges
A. V. Kisil, L. J. Ayton

http://arxiv.org/abs/1705.01160
Motions about a fixed point by hypergeometric functions: new non-complex analytical solutions and integration of the herpolhode
Giovanni Mingari Scarpello, Daniele Ritelli

http://arxiv.org/abs/1705.01269
Alternating Double Euler Sums, Hypergeometric Identities and a Theorem of Zagier
Lee-Peng Teo

http://arxiv.org/abs/1705.01368
Representing (q-)hypergeometric products and mixed versions in difference rings
Evans Doe Ocansey, Carsten Schneider

http://arxiv.org/abs/1705.01380
Linear complexity of Legendre-polynomial quotients
Zhixiong Chen

http://arxiv.org/abs/1705.01869
Pure $SU(2)$ gauge theory partition function and generalized Bessel kernel
P. Gavrylenko, O. Lisovyy

http://arxiv.org/abs/1705.02256
On some mellin transforms for the Riemann zeta function in the critical strip
Alexander E Patkowski

http://arxiv.org/abs/1705.02404
Hypergeometric Properties of Genus 3 Generalized Legendre Curves
Heidi Goodson

http://arxiv.org/abs/1705.02715
Scalar resonant frequencies and Hawking effect of an $f(R)$ global monopole
H. S. Vieira, J. P. Morais Graça, V. B. Bezerra

http://arxiv.org/abs/1705.02863
Automated Generation of Non-Linear Loop Invariants Utilizing Hypergeometric Sequences
Andreas Humenberger, Maximilian Jaroschek, Laura Kovács

http://arxiv.org/abs/1705.03118
A 3D Ginibre point field
Vladislav Kargin

http://arxiv.org/abs/1705.03294
Universality and Fourth Moment Theorem for homogeneous sums. Orthogonal polynomials and apolarity
Rosaria Simone

http://arxiv.org/abs/1705.03306
A Dunkl Analogue of Operators Including Two-variable Hermite polynomials
Jesús A. Álvarez López, Manuel Calaza, Carlos Franco

http://arxiv.org/abs/1705.03313
Second Hankel Determinant for certain class of bi-univalent functions defined by Chebyshev polynomials
H. Orhan, N. Magesh, V. K. Balaji

http://arxiv.org/abs/1705.03409
On the solutions of the critical Lane-Emden equation in higher space dimensions
Radoslaw Antoni Kycia, Galina Filipuk

http://arxiv.org/abs/1705.03596
Applications of the Laurent-Stieltjes constants for Dirichlet L-series
Sumaia Saad Eddin

http://arxiv.org/abs/1705.03759
Extension of Vietoris' inequalities for positivity of trigonometric polynomials
Priyanka Sangal, A. Swaminathan

http://arxiv.org/abs/1705.03857
Power-Sum Denominators
Bernd C. Kellner, Jonathan Sondow

http://arxiv.org/abs/1705.03904
Asymptotic Formulae for Mixed Congruence Stacks
Richard Frnka

http://arxiv.org/abs/1705.03990
Globally hyperbolic moment model of arbitrary order for three-dimensional special relativistic Boltzmann equation
Yangyu Kuang, Huazhong Tang

http://arxiv.org/abs/1705.04183
On Padé approximations and global relations of some Euler-type series
Keijo Väänänen

http://arxiv.org/abs/1705.04303
On a product of certain primes
Bernd C. Kellner

http://arxiv.org/abs/1705.04382
Some unit square integrals
Juan Carlos Sampedro

http://arxiv.org/abs/1705.04595
Calculating the Fourier Coefficients of Jacobi-Eisenstein series
Martin Woitalla

http://arxiv.org/abs/1705.04723
Generalized Log-sine integrals and Bell polynomials
Derek Orr

http://arxiv.org/abs/1705.04864
Chebyshev-type cubature formulas for doubling weights on spheres, balls and simplexes
Feng Dai, Han Feng

http://arxiv.org/abs/1705.05331
The denominators of power sums of arithmetic progressions
Bernd C. Kellner, Jonathan Sondow

http://arxiv.org/abs/1705.05448
Fast and backward stable transforms between spherical harmonic expansions and bivariate Fourier series
Richard Mikael Slevinsky

http://arxiv.org/abs/1705.05527
Rigidity and Edge Universality of Discrete β-Ensembles
Alice Guionnet, Jiaoyang Huang

http://arxiv.org/abs/1705.05562
Integral representations and asymptotic behaviours of Mittag-Leffler type functions of two variables
Christian Lavault

http://arxiv.org/abs/1705.05594
Riesz means of the Dedekind function II
Tetsuya Inaba, Shōta Inoue

http://arxiv.org/abs/1705.05679
Recovering Functions from the Spherical Mean Transform with Data on an Ellipse Using Eigenfunction Expansion in Elliptical Coordinates
Yehonatan Salman

http://arxiv.org/abs/1705.05703
Convexity and monotonicity for the elliptic integrals of the first kind and applications
Zhen-Hang Yang, Jingfeng Tian

http://arxiv.org/abs/1705.05795
Semi-commuting and commuting operators for the Heun family
Davide Batic, Dominic Mills, Marek Nowakowski

http://arxiv.org/abs/1705.06167
Bounds for the gamma function
Necdet Batir

http://arxiv.org/abs/1705.06367
The Mangoldt function and the non-trivial zeros of the Riemann zeta function
Jesús Guillera

http://arxiv.org/abs/1705.06543
An analogue of big q-Jacobi polynomials in the algebra of symmetric functions
Grigori Olshanski

http://arxiv.org/abs/1705.06547
Inequalities for the inverses of the polygamma functions
Necdet Batir

http://arxiv.org/abs/1705.07536
Integrable structure of products of finite complex Ginibre random matrices
Vladimir V. Mangazeev, Peter J. Forrester

http://arxiv.org/abs/1705.07625
Variations for some Painlevé equations
P. B. Acosta-Humánez, M. van der Put, J. Top

http://arxiv.org/abs/1705.07682
Higher generation exceptional Laguerre polynomials and rational potentials
S. Sree Ranjani

http://arxiv.org/abs/1705.07820
An algorithm for the rapid numerical evaluation of Bessel functions of real orders and arguments
James Bremer

http://arxiv.org/abs/1705.07851
Moment Representations of Type I X_2 Exceptional Laguerre Polynomials
Constanze Liaw, Jessica Stewart Kelly, John Osborn

http://arxiv.org/abs/1705.07865
On the value-distributions of logarithmic derivatives of Dedekind zeta functions
Masahiro Mine

http://arxiv.org/abs/1705.07939
Generalized Extension of Watson's theorem for the series ${}_3F_2(1)$
Medhat A. Rakha, Mohammed M. Awad, Asmaa O. Mohammed

http://arxiv.org/abs/1705.08102
Real zeros of Hurwitz zeta-functions and their asymptotic behavior in the interval $(0, 1)$
Kenta Endo, Yuta Suzuki

http://arxiv.org/abs/1705.08701
Fermion propagator in an external potential and generalized Airy functions
A. L. M. Britto, Ashok K. Das, J. Frenkel

http://arxiv.org/abs/1705.09237
Harmonic functions which vanish on coaxial cylinders
Stephen J. Gardiner, Hermann Render

http://arxiv.org/abs/1705.09386
On Müntz-type formulas related to the Riemann zeta function
Hélder Lima

http://arxiv.org/abs/1705.09459
On the higher derivates of arctan
Oliver Deiser, Caroline Lasser

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Elliptic Zeta functions and equivariant functions
Abdellah Sebbar, Isra Al-Shbail

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Probabilistic response and rare events in Mathieu's equation under correlated parametric excitation
Mustafa A. Mohamad, Themistoklis P. Sapsis

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Multivariate generating functions involving Chebyshev polynomials
Paweł J. Szabłowski

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A new method to sum divergent power series: educated match
Gabriel Álvarez, Harris J. Silverstone

http://arxiv.org/abs/1706.00704
Characterization of quadratic Cauchy-Stieltjes Kernel families by orthogonality of polynomials
Raouf Fakhfakh

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Iterated Elliptic and Hypergeometric Integrals for Feynman Diagrams
J. Ablinger, J. Blümlein, A. De Freitas, M. van Hoeij, E. Imamoglu, C. G. Raab, C. -S. Radu, C. Schneider

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Combinatorial identities generated by difference analogs of hyperbolic and trigonometric functions of order n
Vladimir Shevelev

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Square function and the Hamming cube: duality
P. Ivanisvili, F. Nazarov, A. Volberg

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A New Class of Integrals Involving Extended Hypergeometric Function
G. Rahman, A. Ghaffar, K. S. Nisar, S. Mubeen

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Complete Monotonicity and Inequalities of Functions Involving Γ-function
M. Al-Jararha

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Hirota bilinear equations for Painlevé transcendents
A. N. W. Hone, F. Zullo

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The direct and inverse spectral problems for Jacobi-type pencils
Sergey M. Zagorodnyuk

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Hypergeometric First Integrals of the Duffing and van der Pol Oscillators
Tomasz Stachowiak

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A general method for calculating lattice Green functions on the branch cut
Yen Lee Loh

http://arxiv.org/abs/1706.03174
Gaussian unitary ensemble with boundary spectrum singularity and σ-form of the Painlevé II equation
Xiao-Bo Wu, Shuai-Xia Xu, Yu-Qiu Zhao

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Menon-type identities concerning Dirichlet characters
László Tóth

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Further extension of the generalized Hurwitz-Lerch Zeta function of two variables
Kottakkaran Sooppy Nisar

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Star of David and other patterns in the Hosoya-like polynomials triangles
Rigoberto Florez, Robinson A. Higuita, Antara Mukherjee

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Holomorphic Hermite polynomials in two variables
K. Górska, A. Horzela, F. H. Szafraniec

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Reduction and specialization of hyperelliptic continued fractions
Olaf Merkert

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An elliptic Garnier system from interpolation
Yasuhiko Yamada

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Decrease of Fourier coefficients of stationary measures
Jialun Li

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Four Lectures on Weierstrass Elliptic Function and Applications in Classical and Quantum Mechanics
Georgios Pastras

http://arxiv.org/abs/1706.07393
Crystallization of random matrix orbits
Vadim Gorin, Adam W. Marcus

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Positive solutions for second order boundary value problems with sign changing Green's functions
Alberto Cabada, Ricardo Enguiça, Lucía López-Somoza

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Nonparametric Bayesian estimation of a Hölder continuous diffusion coefficient
Shota Gugushvili, Frank van der Meulen, Moritz Schauer, Peter Spreij

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Elliptic Weight Functions and Elliptic q-KZ Equation
Hitoshi Konno

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The Bruinier-Funke pairing and the orthogonal complement of unary theta functions
Ben Kane, Siu Hang Man

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On the numerical rank of radial basis function kernel matrices in high dimension
Ruoxi Wang, Yingzhou Li, Eric Darve

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An Algebra Model for the Higher Order Sum Rules
Jun Yan

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Second Hankel determinant for certain subclasses of bi-univalent functions involving Chebyshev polynomials
Halit Orhan, Evrim Toklu, Ekrem Kadıoğlu

http://arxiv.org/abs/1706.07998
Rational approximations to the zeta function
Keith Ball

http://arxiv.org/abs/1706.08791
On Orthogonal Hypergeometric Groups of Degree Five
Jitendra Bajpai, Sandip Singh

http://arxiv.org/abs/1706.08868
On the zeros of Riemann $\Xi(z)$ function
Yaoming Shi

http://arxiv.org/abs/1706.08952
$L^p - L^q$ estimates for the solution of the Dunkl wave equation
Béchir Amri, Mohamed Gaidi

http://arxiv.org/abs/1706.07380
Intervals between numbers that are sums of two squares
Alexander Kalmynin

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Large-degree asymptotics of rational Painlevé-IV functions associated to generalized Hermite polynomials
Robert Buckingham

http://arxiv.org/abs/1706.09064
Sparse bounds for maximal rough singular integrals via the Fourier transform
Francesco Di Plinio, Tuomas P. Hytönen, Kangwei Li

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Bivariate Extensions of Abramov's Algorithm for Rational Summation
Shaoshi Chen

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New functional equations of finite multiple polylogarithms
Masataka Ono

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Lyapunov stability analysis of a string equation coupled with an ordinary differential system
Matthieu Barreau, Alexandre Seuret, Frédéric Gouaisbaut, Lucie Baudouin

http://arxiv.org/abs/1706.09212
Extending the class of solvable potentials. IV Inverse square potential with a rich spectrum
A. D. Alhaidari

http://arxiv.org/abs/1706.09320
Fourier coefficients of half-integral weight cusp forms and Waring's problem
Fabian Waibel

http://arxiv.org/abs/1706.09457
Asymptotics with respect to the spectral parameter and Neumann series of Bessel functions for solutions of the one-dimensional Schrödinger equation
Vladislav V. Kravchenko, Sergii M. Torba

http://arxiv.org/abs/1706.09718
Independence characterization for Wishart and Kummer matrices
Agnieszka Piliszek

http://arxiv.org/abs/1706.09762
An explicit formula for Szegő kernels on the Heisenberg group
Hendrik Herrmann, Chin-Yu Hsiao, Xiaoshan Li

http://arxiv.org/abs/1706.09804
Denominators of Bernoulli polynomials
Olivier Bordellès, Florian Luca, Pieter Moree, Igor E. Shparlinski

http://arxiv.org/abs/1706.10045
Selberg zeta function and hyperbolic Eisenstein series
Thérèse Falliero

Topic #7 ——— OP - SF Net 24.4 ——— July 15, 2017

From: OP-SF Net Editors
Subject: About the Activity Group

The SIAM Activity Group on Orthogonal Polynomials and Special Functions consists of a broad set of mathematicians, both pure and applied. The Group also includes engineers and scientists, students as well as experts. We have 176 members (as of October 20, 2016) scattered about in 30 countries. Whatever your specialty might be, we welcome your participation in this classical, and yet modern, topic. Our WWW home page is:
http://math.nist.gov/opsf

This is a convenient point of entry to all the services provided by the Group. Our Webmaster is Bonita Saunders (bonita.saunders@nist.gov).

The Activity Group sponsors OP-SF NET, an electronic newsletter, and SIAM-OPSF (OP-SF Talk), a listserv, as a free public service; membership in SIAM is not required. OP-SF NET is transmitted periodically through a post to OP-SF Talk. The OP-SF Net Editors are Howard Cohl (howard.cohl@nist.gov), and Sarah Post (spost@hawaii.edu).

Back issues of OP-SF NET can be obtained at the websites:
https://staff.fnwi.uva.nl/t.h.koornwinder/opsfnet
http://math.nist.gov/∼DLozier/OPSFnet

SIAM-OPSF (OP-SF Talk), which was recently moved to a SIAM server, facilitates communication among members and friends of the Activity Group. To subscribe, go to http://lists.siam.org/mailman/listinfo/siam-OPSF and follow the instructions under the sub-heading "Subscribing to SIAM-OPSF". To contribute an item to the discussion, send e-mail to siam-opsf@siam.org. The moderators are Bonita Saunders (bonita.saunders@nist.gov) and Diego Dominici (dominicd@newpaltz.edu).

SIAM has several categories of membership, including low-cost categories for students and residents of developing countries. In addition, there is the possibility of reduced rate membership for the members of several societies with which SIAM has a reciprocity agreement; see http://www.siam.org/membership/individual/reciprocal.php. For current information on SIAM and Activity Group membership, contact:

> Society for Industrial and Applied Mathematics
> 3600 University City Science Center
> Philadelphia, PA 19104-2688 USA
> phone: +1-215-382-9800
> e-mail: service@siam.org
> WWW : http://www.siam.org

Topic #8 ——— OP - SF Net 24.4 ——— July 15, 2017

From: OP-SF Net Editors
Subject: Submitting contributions to OP-SF NET and SIAM-OPSF (OP-SF Talk)

To contribute a news item to OP-SF NET, send e-mail to one of the OP-SF Editors howard.cohl@nist.gov, or spost@hawaii.edu.
Contributions to OP-SF NET 24.5 should be sent by September 1, 2017.

OP-SF NET is an electronic newsletter of the SIAM Activity Group on Special Functions and Orthogonal Polynomials. We disseminate your contributions on anything of interest to the special functions and orthogonal polynomials community. This includes announcements of conferences, forthcoming books, new software, electronic archives, research questions, and job openings as well as news about new appointments, promotions, research visitors, awards and prizes. OP-SF Net is transmitted periodically through a post to SIAM-OPSF (OP-SF Talk).

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.

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

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

Walter Van Assche, Chair
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

Thought of the month

I read in the proof sheets of Hardy on Ramanujan: "As someone said, each of the positive integers was one of his personal friends." My reaction was, "I wonder who said that; I wish I had." In the next proof-sheets I read (what now stands), "It was Littlewood who said..."

John Edensor Littlewood, *A Mathematician's Miscellany*, 1953.