

# OP - SF NET - Volume 19, Number 1 - January 15, 2012

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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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## Today's Topics

1. Superintegrability, Exact Solvability, and Special Functions
2. OPSFA-12 in Tunisia
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## Calendar of Events:

### February 20-24, 2012

Conference on Superintegrability, Exact Solvability, and Special Functions, Centro Internacional de Ciencias A.C., Cuernavaca, Mexico, 20-24 February 2012. 19.1 #1

<http://www.cicc.unam.mx/activities/2012/superinte.html>

### May 17-19, 2012

International Conference on Applied Mathematics and Approximation Theory – AMAT 2012, Ankara, Turkey (Celebrating the 60<sup>th</sup> birthday of Professor George A. Anastassiou)

<http://amat2012.etu.edu.tr/>

### May 29 - June 1, 2012

Hypergeometric series and their generalizations in algebra, geometry, number theory and physics, Paris, France. 19.1 #3

<http://www.liafa.jussieu.fr/~lovejoy/hypergeometric.html>

**June 11 -15, 2012**

International Symposium on Orthogonal Polynomials and Special Functions — a Complex Analytic Perspective, Copenhagen, Denmark  
18.4 #2  
<http://www.matdat.life.ku.dk/~henrikp/osca2012/>

**June 25-29, 2012**

AIM Workshop: Hypergeometric Motives, International Centre for Theoretical Physics, Trieste, Italy  
<http://aimath.org/ARCC/workshops/hypermotives.html>

**June 28 – July 3, 2012**

Eighth International Conference on Mathematical Methods for Curves and Surfaces, Oslo, Norway  
[www.ifi.uio.no/~cagd/2012](http://www.ifi.uio.no/~cagd/2012)

**July 4-6, 2012**

Workshop "Numerical Software: Design, Analysis and Verification"  
Santander, Spain  
18.6 #1  
<http://personales.unican.es/segurajj/numsoft12>

**July 9-13, 2012**

SIAM Annual Meeting, Minneapolis, Minnesota, USA  
<http://www.siam.org/meetings/an12/>

**September 3-7, 2012**

International Conference on Differential Equations, Difference Equations and Special Functions in memory of Professor Panayiotis D. Siafarikas, Patras, Greece. 19.1 #4  
<http://www.icddesf.upatras.gr/>

**September 19-25, 2012**

10th International Conference of Numerical Analysis and Applied Mathematics, Kos, Greece  
<http://www.icnaam.org/>

**March 25-2, 2013**

12<sup>th</sup> International Symposium on Orthogonal Polynomials, Special Functions and Applications (OPSFA-12), Sousse, Tunisia 19.1, #2  
<http://matematicas.uc3m.es/12opsfa>

**July 8-12, 2013**

SIAM Annual Meeting, San Diego, California, USA (including OPSF “track”) 18.5 #3  
<http://www.siam.org/meetings/an13/>

## **Topic #1 ----- OP-SF NET 19.1 ----- January 15, 2012**

From: OP-SF NET Editors

Subject: Superintegrability, Exact Solvability, and Special Functions

The following is from the web site:

<http://www.cicc.unam.mx/activities/2012/superinte.html>

### **Superintegrability, Exact Solvability, and Special Functions**

Cuernavaca, Mexico, February 20-24th, 2012

Local Organizing Committee:

Natig M. Atakishiyev, Instituto de Matemáticas, UNAM

Gennadiy N. Burlak, CIICAP, UAEM

Jared Figueroa Cervantes, Grad-FC, ICF-UNAM

Johnny Méndez Franco, Grad-FC, IM-UNAM

Kurt Bernardo Wolf, Instituto de Ciencias Físicas, UNAM

International Organizing Committee:

Ernest G. Kalnins, (New Zealand)

Willard Miller Jr., (USA)

George S. Pogosyan, (Armenia, Russia and Mexico)

Sarah Post, (USA and Canada)

Pavel Winternitz, (Canada)

Kurt Bernardo Wolf, (Mexico)

International Advisory Committee:

Costas Daskaloyannis, University of Thessaloniki, Greece.

Jeff Geronimo, Georgia Tech., USA.

Bogdan Mielnik, CINVESTAV, Mexico.

Manuel F. Rañada, Universidad de Zaragoza, Spain.

Stefan Rauch-Wojciechowski, Linköping University, Sweden.

Piergiulio Tempesta, Universidad Complutense de Madrid, Spain.

Andrey V. Tsiganov, St. Petersburg State University, Russia.

An important class of physical systems has been called superintegrable because they admit more integrals of motion than degrees of freedom. These integrals form interesting nonabelian algebras, usually finitely generated polynomial ones. Historically the best known superintegrable systems were the Coulomb-Kepler system and the harmonic oscillator. Presently, infinite families of such systems are known and have applications in areas ranging from elementary particle physics to semiconductors and aeronautical engineering. Their mathematical applications mainly concern special function theory, and in particular orthogonal polynomials of continuous and discrete variables.

Further and updated information is available at the web site.

## **Topic #2 ----- OP-SF NET 19.1 ----- January 15, 2012**

From: Walter Van Assche [Walter.VanAssche@wis.kuleuven.be](mailto:Walter.VanAssche@wis.kuleuven.be)  
Subject: OPSFA-12 in Tunisia

The next International Symposium on Orthogonal Polynomials, Special Functions and Applications (OPSFA-12) will be held in Tunisia, from March 25 to March 29, 2013. The meeting will be in the El Mouradi Palace Hotel, a 5-star hotel in Port El Kantaoui, Sousse, Tunisia. More information (organizing and scientific committee) can be found on

<http://matematicas.uc3m.es/12opsfa>

The list of plenary speakers is still in preparation .

## **Topic #3 ----- OP-SF NET 19.1 ----- January 15, 2012**

From: OP-SF NET Editors  
Subject: Paris conference on hypergeometric series

The following is from the web site:

<http://www.liafa.jussieu.fr/~lovejoy/hypergeometric.html>

**Hypergeometric series and their generalizations in algebra,  
geometry, number theory and physics  
May 29 – June 1, 2012  
Institut Henri Poincaré, Paris, France**

Organizers: Jeremy Lovejoy (Paris), Tanguy Rivoal (Lyon)

We will have 19 one-hour lectures over 4 days. Here is the complete list of speakers:

George Andrews (Penn State)  
Frits Beukers (Utrecht)  
Hermann Boos (Wuppertal)  
Kathrin Bringmann (Cologne)  
Eric Delaygue (Grenoble)  
Lucia Di Vizio (Paris)  
Terry Gannon (Alberta)  
Kazuhiro Hikami (Kyushu)  
Frédéric Jouhet (Lyon)  
Christian Krattenthaler (Vienna)  
Laura Matusevich (Texas A&M)  
Robert Osburn (Dublin)

Michael Schlosser (Vienna)  
Alan Sokal (London)  
Alexander Varchenko (North Carolina)  
Masha Vlasenko (Dublin)  
Ole Warnaar (Queensland)  
Wadim Zudilin (Newcastle)  
Sander Zwegers (Cologne)

If you are planning to attend, please let one of the organizers know. There is no registration fee. Here is a list of (probable) participants: Jean-Paul Allouche, George Andrews, Jitendra Bajpai, Frits Beukers, Hermann Boos, Kathrin Bringmann, Simon Daguét, Eric Delaygue, Lucia Divizio, Stéphane Fischler, Amanda Folsom, Terry Gannon, Kazuhiro Hikami, Marc Huttner, Frédéric Jouhet, Christian Krattenthaler, Odile Lecacheux, Ling Long, Jeremy Lovejoy, Laura Matusevich, Victor H. Moll, Moubinool Omarjee, Robert Osburn, Tanguy Rivoal, Julien Roques, Michael Schlosser, Alan Sokal, Alexander Varchenko, Masha Vlasenko, Michel Waldschmidt, Ole Warnaar, Tonghai Yang, Wadim Zudilin, Sander Zwegers

Talks will take place in the Amphithéâtre Hermite of the Institut Henri Poincaré. Maps and some suggestions for hotels are linked to the web site.

If you would like to attend the conference but are unable to do so without financial assistance, let the organizers know. Please specify how much funding you have from other sources and how much you think you need. We will have funding available and plan to allocate this starting February 1, 2012.

This conference is financed by the ANR projects IComb and Q-DIFF.

## **Topic #4 ----- OP-SF NET 19.1 ----- January 15, 2012**

From: OP-SF NET Editors  
Subject: Patras Conference in memory of P. D. Siafarikas

Conference on Differential Equations, Difference Equations and Special  
Functions

In memory of Professor Panayiotis D. Siafarikas  
September 3 – 7, 2012, Patras, Greece.

### SECOND ANNOUNCEMENT

On September 3 – 7, 2012 an international conference on differential, difference equations and special functions (ICDDSF, in short) will be held in Patras, Greece, at the [Conference and Cultural Hall](#) of the [University of Patras](#). The conference is dedicated to the memory of Professor [Panayiotis D. Siafarikas](#), who left so early in 2010.

The main aim of the conference is to bring together experts working in all areas (including numerical investigations and applications) of differential equations, difference equations and special functions and to promote research in these areas.

The conference is organized by the local Organizing Committee consisting of [Evangelos K. Ifantis](#) (University of Patras), [Chrysoula G. Kokologiannaki](#) (University of Patras) and [Eugenia N. Petropoulou](#) (University of Patras).

The scientific committee of the conference consists of

- [Ondřej Došlý](#), (Masaryk University, Czech Republic)
- [Evangelos Ifantis](#) (University of Patras, Greece)
- [Chrysoula G. Kokologiannaki](#) (University of Patras, Greece)
- [Andrea Laforgia](#), (University of Rome III, Italy)
- [Lance Littlejohn](#) (Baylor University, U.S.A.)
- [Martin Muldoon](#) (York University, Canada)
- [Eugenia N. Petropoulou](#) (University of Patras, Greece)

The scientific program will consist of [plenary lectures](#) (50 minutes talk + 10 minutes for questions), [invited lectures](#) (25 minutes talk + 5 minutes for questions) and short communications (15 minutes + 5 minutes for questions).

Plenary Speakers:

- [Dimitar Dimitrov](#) (Universidade Estadual Paulista, Brazil)
- [John R. Graef](#) (University of Tennessee at Chattanooga, U.S.A.)
- [Nalini Joshi](#) (University of Sydney, Australia)
- [Roderick Wong](#) (City University of Hong Kong, China).

Invited Speakers:

- [Árpád Baricz](#) (Babeş-Bolyai University, Romania)
- [Zuzana Došlá](#) (Masaryk University, Czech Republic)
- [Kathy Driver](#) (University of Cape Town, South Africa)
- [István Györi](#) (University of Pannonia, Hungary)
- [Ilpo Laine](#) (University of Eastern Finland (formerly University of Joensuu), Finland)
- [Mihály Pituk](#) (University of Pannonia, Hungary)
- [Luis Velazquez](#) (University of Zaragoza, Spain)

The city of Patras, with its friendly people, its numerous sightseeing and its diverse surroundings, has much to offer in order to create a nice and enjoyable atmosphere around the Conference.

We look forward to seeing you in Patras.  
The Local Organizing Committee

#### CONTACT INFORMATION

INTERNATIONAL CONFERENCE ON DIFFERENTIAL EQUATIONS, DIFFERENCE  
EQUATIONS AND SPECIAL FUNCTIONS  
Department of Mathematics (to C. G. Kokologiannaki)

University of Patras  
26500 Patras  
Greece  
Tel. - Fax: +(30)20610 997177  
E-mail: [chrykok@math.upatras.gr](mailto:chrykok@math.upatras.gr) (Chrysoula G. Kokologiannaki) or  
[jenpetro@des.upatras.gr](mailto:jenpetro@des.upatras.gr) (Eugenia N. Petropoulou)

For more information, see the conference web site:

<http://www.icddesf.upatras.gr/>

There will be updates on registration, accommodation, etc. by January 25, 2012.

## **Topic #5 ----- OP-SF NET 19.1 ----- January 15, 2012**

From: Juri Rappoport [jmrap@landau.ac.ru](mailto:jmrap@landau.ac.ru)

Subject: Moisei Rappoport Centenary Conference

A one day conference "Mathematical and information technologies in economics and medicine" devoted to the 100-year-old memory of Moisei Rappoport (April 12 1912 - December 25 1996) is planned to be held in Moscow, Russian Federation, in April 2012. It is included in the plan of scientific events of the Russian Academy of Sciences for 2012. Exact information about the date of the conference will be available soon. The following topics are planned:

1. Computation of mathematical functions
2. Mathematical economics
3. Mathematical medicine
4. Tabulators and computer architecture
5. Automation in science management
6. Reminiscences

Moisei Rappoport was an author of a number of tables of mathematical functions including exponential functions and elliptic integrals. He also worked on a mechanization of their computation. OP-SF SIAM Activity Group Members and other scientists are invited to participate in this conference.

Juri Rappoport  
Organizer of the Conference

## **Topic #6 ----- OP-SF NET 19.1 ----- January 15, 2012**

From: OP-SF NET Editors  
Subject: Herbert S. Wilf 1931-2012

Herbert Wilf died on January 7. Some idea of the scope of his contributions to mathematics including our areas of interest can be gleaned from :

[http://www.math.upenn.edu/History/obits/Herb\\_Wilf.html](http://www.math.upenn.edu/History/obits/Herb_Wilf.html)

George Andrews has provided us with the following tribute.

MY FRIEND, HERB WILF

Herb Wilf passed away on January 7, 2012. We who knew him will hugely miss him. He truly epitomized the phrase "Gentle Giant." He was wonderfully kind and generous. He was a grand and powerful mathematician, and he was probably the tallest mathematician I have known.

I first met him when I was a graduate student at the University of Pennsylvania in the early 1960's. He had just been hired at Penn and was one of the youngest faculty members in the department. He was very helpful to me and many, many others throughout his career. I became most aware of his work when I was editing P. A. MacMahon's Collected Papers. Herb's 1968 paper, A mechanical counting method and combinatorial applications, showed me what powerful insights Herb brought to bear in his work on combinatorics.

Of course, he became most famous for being "W" in the WZ method (joint work with Doron Zeilberger). Both Herb and Doron won the Steele Prize in 1998. This was certainly a wonderful achievement, but it was only one chapter in the extensive and exciting collection of Herb Wilf's papers.

Being a great mathematician is a great thing, and Herb was certainly that. Being a great human being is the greatest thing, and Herb was very much a great human being. We will all deeply miss this grand, many faceted, gentle giant.

George Andrews

## **Topic #7 ----- OP-SF NET 19.1 ----- January 15, 2012**

From: Juri Rappoport [jmrapp@landau.ac.ru](mailto:jmrapp@landau.ac.ru)  
Subject: Report on 8th ISAAC Congress in Moscow

The 8th ISAAC Congress was held in Moscow, Russian Federation during the period August 22 - 27 2011. It was organized by the People's Friendship University of Russia, the Division of Mathematics of the Russian Academy of Sciences, the Steklov Institute of Mathematics, and Moscow State University. It

took place at the People's Friendship University of Russia.

The website of the ISAAC Society can be found at <http://www.mathisaac.org> . The International Society for Analysis, its Applications and Computation (ISAAC) has been organizing the International ISAAC Congress biannually since 1997. The previous Congresses took place in the USA (Delaware 1997), Japan (Fukuoka 1999), Germany (Berlin 2001), Canada (Toronto 2003), Italy (Catania 2005), Turkey (Ankara 2007) and the United Kingdom (London 2009). The next ISAAC Congress is planned for Krakow, Poland in 2013.

The Co-Chairs of the Congress were prominent mathematicians:

V.M.Filippov, Rector of Peoples' Friendship University of Russia,

V.V.Kozlov, Director of the Steklov Institute of Mathematics,

V.A.Sadovnichy, Rector of Moscow State University.

There were sessions on real and complex analysis, approximation theory, asymptotic analysis, integral transforms and many other sessions related to special functions. About four hundred scientists from all continents participated in the Congress. Professor Michael Ruzhansky (Imperial College, London) was reelected as ISAAC President for two more years. Twenty participants from nine countries presented lectures in the "Integral transforms and reproducing kernels" session. Professor Daniel Alpay (Ben Gurion University of the Negev, Israel) presented a Congress plenary lecture as a session representative.

This Congress provided a good opportunity to visit and sightsee in Moscow. The OP-SF SIAM Activity Group Members and other scientists are invited to participate in future ISAAC Congresses.

Juri Rappoport

(Member of the International Advisory Board and Organizing Committee, Co-organiser of the section "Integral transforms and reproducing kernels")

## **Topic #8 ----- OP-SF NET 19.1 ----- January 15, 2012**

From: Roelof Koekoek [R.Koekoek@tudelft.nl](mailto:R.Koekoek@tudelft.nl)

Subject: Diagrams of the Askey scheme and its q-analogue

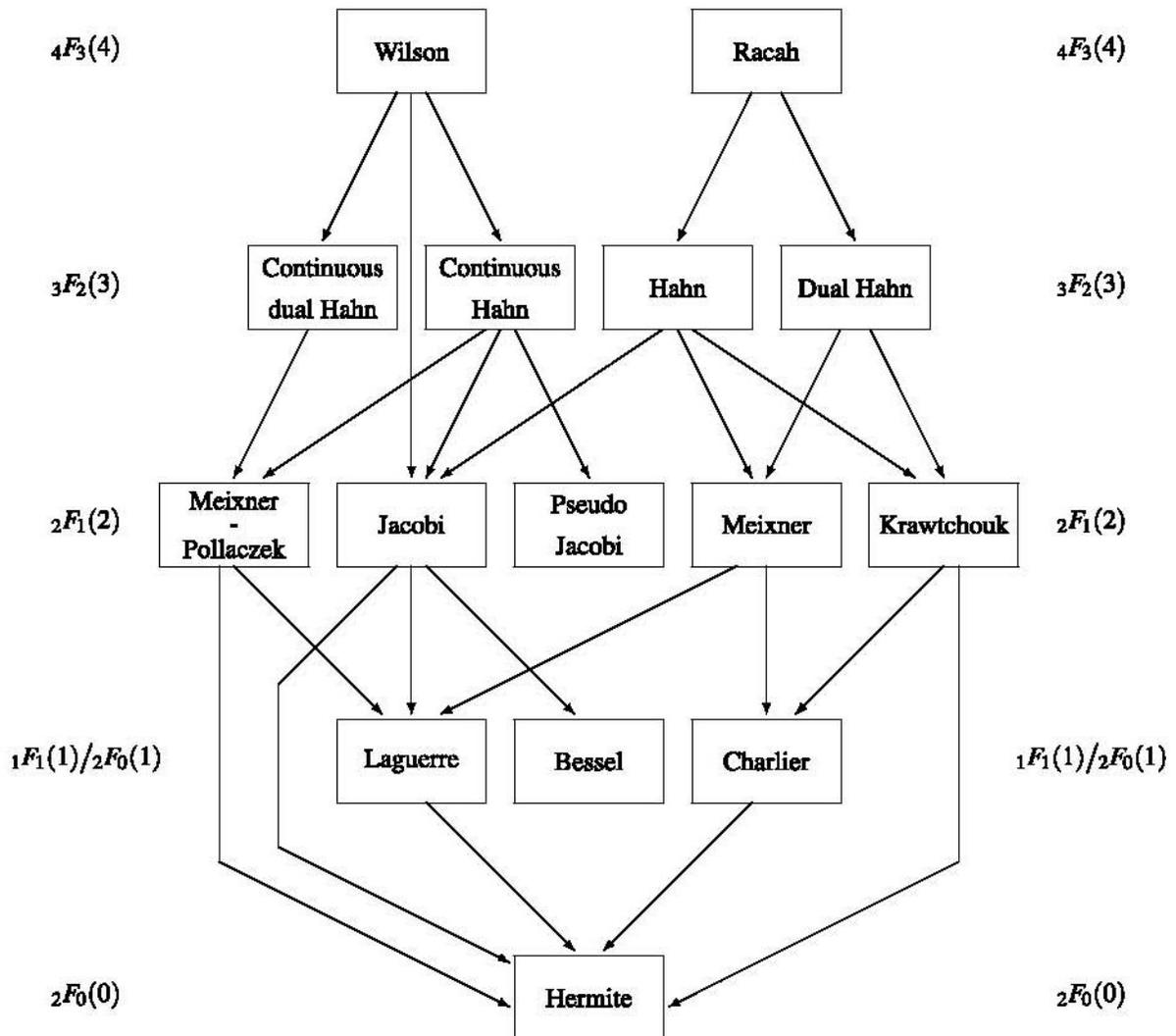
The diagrams of the Askey scheme of hypergeometric orthogonal polynomials and its q-analogue in the book "Hypergeometric Orthogonal Polynomials and Their q-Analogues" by Roelof Koekoek, Peter Lesky and René Swarttouw, are available for download in various formats at

<http://aw.twi.tudelft.nl/~koekoek/book.html> or

<http://homepage.tudelft.nl/11r49/book.html>

Editors' note: The Askey scheme is reproduced on the next page:

**ASKEY SCHEME  
OF  
HYPERGEOMETRIC  
ORTHOGONAL POLYNOMIALS**



## Topic #9 ----- OP-SF NET 19.1 ----- January 15, 2012

From: OP-SF NET Editors

Subject: New book on Mathematics of Signal Processing

From the publisher's web site:

The Mathematics of Signal Processing

By Steven B. Damelin and Willard Miller, Jr.

Paperback

Series: [Cambridge Texts in Applied Mathematics](#) (No. 48)

ISBN:9781107601048

Publication date: December 2011

462 pages, 50 b/w illus. 265 exercises

£40.00

Arising from courses taught by the authors, this largely self-contained treatment is ideal for mathematicians who are interested in applications or for students from applied fields who want to understand the mathematics behind their subject. Early chapters cover Fourier analysis, functional analysis, probability and linear algebra, all of which have been chosen to prepare the reader for the applications to come. The book includes rigorous proofs of core results in compressive sensing and wavelet convergence. Fundamental is the treatment of the linear system  $y = \Phi x$  in both finite and infinite dimensions. There are three possibilities: the system is determined, overdetermined or underdetermined, each with different aspects. The authors assume only basic familiarity with advanced calculus, linear algebra and matrix theory and modest familiarity with signal processing, so the book is accessible to students from the advanced undergraduate level. Many exercises are also included. For ordering information, see:

[http://www.cambridge.org/gb/knowledge/isbn/item6560879/?site\\_locale=en\\_GB](http://www.cambridge.org/gb/knowledge/isbn/item6560879/?site_locale=en_GB)

## Topic #10 ----- OP-SF NET 19.1 ----- January 15, 2012

From: OP-SF NET Editors

Subject: New book on Asymptotics

Hadamard Expansions and Hyperasymptotic Evaluation: An Extension of the Method of Steepest Descents

by R. B. Paris

Cambridge University Press

Series: [Encyclopedia of Mathematics and its Applications](#) (No. 141)

- Hardback
- ISBN:9781107002586
- Publication date: March 2011

- 252pages
- 70 b/w illus. 30 tables
- £50.00

From the publisher's web site:

The author describes the recently developed theory of Hadamard expansions applied to the high-precision (hyperasymptotic) evaluation of Laplace and Laplace-type integrals. This brand new method builds on the well-known asymptotic method of steepest descents, of which the opening chapter gives a detailed account illustrated by a series of examples of increasing complexity. A discussion of uniformity problems associated with various coalescence phenomena, the Stokes phenomenon and hyperasymptotics of Laplace-type integrals follows. The remaining chapters deal with the Hadamard expansion of Laplace integrals, with and without saddle points. Problems of different types of saddle coalescence are also discussed. The text is illustrated with many numerical examples, which help the reader to understand the level of accuracy achievable. The author also considers applications to some important special functions. This book is ideal for graduate students and researchers working in asymptotics.

## **Topic #11 ----- OP-SF NET 19.1 ----- January 15, 2012**

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 mostly during November and December 2011.

<http://arxiv.org/abs/1110.0870>

On bounds for solutions of monotonic first order difference-differential systems

[Javier Segura](#)

<http://arxiv.org/abs/1112.1001>

Algebraic transformations of hypergeometric functions and automorphic forms on Shimura curves

[Fang-Ting Tu, Yifan Yang](#)

<http://arxiv.org/abs/1112.4230>

Kernel identities for van Diejen's  $q$ -difference operators and transformation formulas for multiple basic hypergeometric series

[Yasuho Masuda](#)

<http://arxiv.org/abs/1112.4981>

On a family of symmetric hypergeometric functions of several variables and their Euler type integral representation

Zhuangchu Luo, Hua Chen, Changgui Zhang

<http://arxiv.org/abs/1112.5769>

Hypergeometric functions as generalized Stieltjes transforms

Dmitry Karp, Elena Prilepkina

<http://arxiv.org/abs/1111.2994>

Sobolev orthogonal polynomials on a simplex

Rabia Aktas, Yuan Xu

<http://arxiv.org/abs/1111.4019>

Orthogonal polynomials on the unit circle with Verblunsky coefficients defined by the skew-shift

Helge Krueger

<http://arxiv.org/abs/1111.4239>

The limiting distribution of the maximal height of the outermost path of nonintersecting Brownian excursions and discrete Gaussian orthogonal polynomials

Karl Liechty

<http://arxiv.org/abs/1111.5167>

Orthogonal polynomials of the R-linear generalized minimal residual method

Marko Huhtanen, Allan Perämäki

<http://arxiv.org/abs/1111.5658>

Orthogonality relations for bivariate Bernstein-Szegő measures

Jeffrey S. Geronimo, Plamen Iliev, Greg Knese

<http://arxiv.org/abs/1111.5968>

A Littlewood-Paley type theorem on orthoprojectors onto mutually orthogonal subspaces of piecewise polynomial functions and its corollary

S. N. Kudryavtsev

<http://arxiv.org/abs/1111.6348>

A New Approach to Ratio Asymptotics for Orthogonal Polynomials

Brian Simanek

<http://arxiv.org/abs/1111.6467>

Exceptional orthogonal polynomials and new exactly solvable potentials in quantum mechanics

C. Quesne

<http://arxiv.org/abs/1111.7038>

Some Orthogonal Polynomials Arising from Coherent States

S. Twareque Ali, Mourad E. H. Ismail

<http://arxiv.org/abs/1111.7262>

Discrete spectral transformations of skew orthogonal polynomials and associated discrete integral systems

Hiroshi Miki, Hiroaki Goda, Satoshi Tsujimoto

<http://arxiv.org/abs/1111.0515>

Orthogonality relations and Cherednik identities for multivariable Baker-Akhiezer functions

Oleg Chalykh, Pavel Etingof

<http://arxiv.org/abs/1111.1218>

Bounds for extreme zeros of some classical orthogonal polynomials

K. Driver, K. Jordaan

<http://arxiv.org/abs/1112.5713>

Orthogonal Polynomials and  $S$ -curves

E.A.Rakhmanov

<http://arxiv.org/abs/1112.0970>

Separation of variables and combinatorics of linearization coefficients of orthogonal polynomials

Mourad E. H. Ismail, Anisse Kasraoui, Jiang Zeng

<http://arxiv.org/abs/1112.0988>

Limit-Periodic Verblunsky Coefficients for Orthogonal Polynomials on the Unit Circle

Darren C. Ong

<http://arxiv.org/abs/1111.3447>

Asymptotic Properties of Extremal Polynomials Corresponding to Measures Supported on Analytic Regions

Brian Simanek

<http://arxiv.org/abs/1111.3848>

Generating functions for generalized Stirling type numbers, Array type polynomials, Eulerian type polynomials and their applications

Yilmaz Simsek

<http://arxiv.org/abs/1111.4066>

Determinantal and Permanent Representation of Generalized Fibonacci Polynomials

Adem Sahin, Kenan Kaygisiz

<http://arxiv.org/abs/1111.4067>

Determinant and Permanent of Hessenberg Matrix and Generalized Lucas Polynomials

Kenan Kaygisiz, Adem Sahin

<http://arxiv.org/abs/1111.4849>

The Properties Of Modified  $q$ -Bernstein Polynomials for Functions Of Several Variables With Their Generating Function And Interpolation Function

Mehmet Açıkgöz, Serkan Araci, Hassan Jolany

<http://arxiv.org/abs/1111.6112>

Macdonald polynomials

Jasper V. Stokman

<http://arxiv.org/abs/1111.6138>

Solutions of Several Coupled Discrete Models in terms of Lamé Polynomials of Arbitrary Order

Avinash Khare, Avadh Saxena, Apoorva Khare

<http://arxiv.org/abs/1111.6785>

Ordered Bell numbers, Hermite polynomials, Skew Young Tableaux, and Borel orbits

Mahir Bilen Can, Michael Joyce

<http://arxiv.org/abs/1111.0601>

Befriending Askey-Wilson polynomials

Paweł J. Szabłowski

<http://arxiv.org/abs/1111.2209>

Linear operators on polynomials preserving roots in open circular domains

Eugeny Melamud

<http://arxiv.org/abs/1112.5902>

A note on the modified  $q$ -Genocchi numbers and polynomials with weight  $(\alpha, \beta)$  and their interpolation function at negative integers

Serkan Araci, Mehmet Açıkgöz, Feng Qi, Hassan Jolany

<http://arxiv.org/abs/1112.5956>

On the limit of non-standard  $q$ -Racah polynomials

R. Alvarez-Nodarse, R. Sevinik-Adiguzel

<http://arxiv.org/abs/1112.6019>

On the Krall-type Askey-Wilson Polynomials

R. Alvarez-Nodarse, R. Sevinik-Adiguzel

<http://arxiv.org/abs/1112.1119>

Asymptotics for products of characteristic polynomials in classical  $\beta$ -Ensembles

Patrick Desrosiers, Dang-Zheng Liu

<http://arxiv.org/abs/1112.2073>

On Fourier integral transforms for  $q$ -Fibonacci and  $q$ -Lucas polynomials

Natig Atakishiyev, Pedro Franco, Decio Levi, Orlando Ragnisco

<http://arxiv.org/abs/1112.2100>

On The Hermite Based-Second Kind Genocchi Polynomials

Burak Kurt, Yilmaz Simsek

<http://arxiv.org/abs/1112.2201>

Computing the moment polynomials of the zeta function

[Michael O. Rubinstein](#), [Shuntaro Yamagishi](#)

<http://arxiv.org/abs/1112.5188>

Macdonald polynomials in superspace: conjectural definition and positivity conjectures

[O. Blondeau-Fournier](#), [P. Desrosiers](#), [L. Lapointe](#), [P. Mathieu](#)

<http://arxiv.org/abs/1112.5589>

Meixner polynomials in several variables satisfying bispectral difference equations

[Plamen Iliev](#)

<http://arxiv.org/abs/1111.6143>

Bessel Function Model for Corneal Topography

[Wojciech Okrański](#), [Lukasz Płociniczak](#)

<http://arxiv.org/abs/1111.0881>

On evaluation of integrals involving Bessel functions

[D. Babusci](#), [G. Dattoli](#)

<http://arxiv.org/abs/1111.1018>

Remarks on the paper: "Bounds for functions involving ratios of modified Bessel functions"

[Javier Segura](#)

<http://arxiv.org/abs/1112.0072>

Numerical calculation of Bessel, Hankel and Airy functions

[U. D. Jentschura](#), [E. Lötstedt](#)

<http://arxiv.org/abs/1111.0250>

On an iteration leading to a q-analogue of the Digamma function

[Christian Berg](#) (University of Copenhagen), [Helle Bjerg Petersen](#) (University of Copenhagen)

<http://arxiv.org/abs/1111.0925>

The second shifted moment of the Riemann zeta function

[Sandro Bettin](#)

<http://arxiv.org/abs/1112.4910>

A note on the real part of the Riemann zeta-function

[Juan Arias de Reyna](#), [Richard P. Brent](#), [Jan van de Lune](#)

<http://arxiv.org/abs/1112.6038>

On large gaps between zeros of the Riemann zeta-function

[Feng Shaoji](#), [Wu Xiaosheng](#)

<http://arxiv.org/abs/1112.4830>  
Askey-Wilson Integral and its Generalizations  
Paweł J. Szabłowski

<http://arxiv.org/abs/1112.2323>  
Summation formulae for  $q$ -Watson type  ${}_4\phi_3$ -series  
Chuanan Wei, Dianxuan Gong, Jianbo Li

<http://arxiv.org/abs/1111.3531>  
The Riemann-Hilbert approach to obtain critical asymptotics for Hamiltonian perturbations of hyperbolic and elliptic systems  
Tom Claeys

<http://arxiv.org/abs/1111.6139>  
Heine, Hilbert, Pade, Riemann, and Stieltjes: a John Nuttall's work 25 years later  
Andrei Martinez-Finkelshtein, Evgenii A. Rakhmanov, Sergey P. Suetin

<http://arxiv.org/abs/1112.2282>  
Asymptotic expansions and fast computation of oscillatory Hilbert transforms  
Haiyong Wang, Lun Zhang, Daan Huybrechs

<http://arxiv.org/abs/1112.3848>  
The Hilbert series of  $N=1$   $SO(N_c)$  and  $Sp(N_c)$  SQCD, Painlevé VI and Integrable Systems  
Estelle Basor, Yang Chen, Noppadol Mekareeya

<http://arxiv.org/abs/1112.0389>  
The inversion formula of polylogarithms and Riemann-Hilbert Problem  
Shu Oi, Kimio Ueno

<http://arxiv.org/abs/1111.6987>  
Solution hierarchies for the Painleve IV equation  
David Bermudez, David J. Fernandez C

<http://arxiv.org/abs/1112.2916>  
On algebraic relations between solutions of a generic Painleve equation  
Ronnie Nagloo, Anand Pillay

## **Topic #12 ----- OP-SF NET 19.1 ----- January 15, 2012**

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

around 130 members scattered about in more than 20 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](mailto: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 Diego Dominici ([dominicd@newpaltz.edu](mailto:dominicd@newpaltz.edu)) and Martin Muldoon ([muldoon@yorku.ca](mailto:muldoon@yorku.ca)).

Back issues of OP-SF NET can be obtained at the WWW addresses:  
<http://staff.science.uva.nl/~thk/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 see the archive of all messages, go to <http://lists.siam.org/mailman/listinfo/siam-OPSF>. To contribute an item to the discussion, send email to [siam-opsf@siam.org](mailto:siam-opsf@siam.org). The moderators are Bonita Saunders ([bonita.saunders@nist.gov](mailto:bonita.saunders@nist.gov)) and Diego Dominici ([dominicd@newpaltz.edu](mailto: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  
email: [service@siam.org](mailto:service@siam.org)  
WWW : <http://www.siam.org>  
<http://www.siam.org/membership/outreachmem.htm>

## **Topic #13 ----- OP-SF NET 19.1 ----- January 15, 2012**

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 email to one of the OP-SF Editors [dominicd@newpaltz.edu](mailto:dominicd@newpaltz.edu) or [muldoon@yorku.ca](mailto:muldoon@yorku.ca).

Contributions to OP-SF NET 19.2 should be sent by March 1, 2012.

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. 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 email to [siam-opsf@siam.org](mailto: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](mailto:service@siam.org)

The elected Officers of the Activity Group (2011-2013) are:

Chair: Francisco Marcellán

Vice Chair: Jeff Geronimo

Program Director: Diego Dominici

Secretary: Peter Clarkson

The appointed officers are:

Diego Dominici, OP-SF NET co-editor and OP-SF Talk moderator

Martin Muldoon, OP-SF NET co-editor

Bonita Saunders, Webmaster and OP-SF Talk moderator