Topics:
1. Message from the Chair
2. OPSFA Steering Committee
3. OPSFA-13 in Gaithersburg, MD
4. Question on spherical Bessel functions
5. Preprints in arXiv.org
6. About the Activity Group
7. Submitting contributions to OP-SF NET and SIAM-OPSF (OP-SF Talk)

Calendar of Events:

May 19-23, 2014
Workshop on Random Matrices and Jacobi Operators, Mittag-Leffler Institute, Djursholm, Sweden
http://www.mittag-leffler.se/?q=0519

May 26-30, 2014
Constructive Functions 2014. In honor of Ed Saff’s 70th birthday. Vanderbilt University, Nashville, Tennessee, USA.
http://www.math.vanderbilt.edu/~constructive2014/

May 26-30, 2014
From Macdonald Processes to Hecke Algebras and Quantum Integrable Systems, Institut Henri Poincaré, Paris, France
http://math.mit.edu/~icorwin/IHP2014.html

June 17-20, 2014
Fourth Iberoamerican Workshop on Orthogonal Polynomials and Applications (EIBPOA 2014), Bogotá, Colombia
www.matematicas.unal.edu.co/newsite/fcweb/index.php?id=179&L=1
June 23-26, 2014
http://ucua.ujaaen.es/ajlopez/jca/dates.php

July 7-11, 2014
SIAM Annual Meeting, Chicago, Illinois, USA
http://www.siam.org/meetings/an14/

July 14-18, 2014
XXXth International Colloquium on Group Theoretical Methods in Physics, Ghent, Belgium
http://www.group30.ugent.be/

July 21-25, 2014
VIII Pan American Workshop in Applied and Computational Mathematics/Computational Science and Engineering, Barranquilla, Colombia
http://www.csrc.sdsu.edu/panam2014/index.html

August 13-21, 2014
International Congress of Mathematicians, Seoul, Korea
http://www.icm2014.org

August 25-29, 2014
Exact Solvability and Symmetry Avatars, Conference held on the occasion of Luc Vinet’s 60th birthday, Centre de Recherches Mathématiques, Montreal Canada
http://www.crm.umontreal.ca/2014/Vinet60/index_e.php

September 7-12, 2014
Exceptional Orthogonal Polynomials and exact solutions in Mathematical Physics, Segovia, Spain
http://www.icmat.es/congresos/2014/xopconf/

October 18-19, 2014
American Mathematical Society, Eastern Section Meeting, including Special Session on “Special Functions and their Applications” (organized by Mourad Ismail and Nasser Saad), Halifax, Nova Scotia, Canada
http://www.ams.org/meetings/sectional/2223_program.html

December 11-20, 2014
Foundations of Computational Mathematics, Montevideo, Uruguay
(including workshops on Approximation Theory and on Special Functions and Orthogonal Polynomials)
June 1-5, 2015
13th International Symposium on Orthogonal Polynomials, Special
Functions and Applications (OPSFA13), Gaithersburg, Maryland, USA
http://www.siam.org/meetings/opsfa13/

Topic #1 --------- OP-SF NET 21.3 --------- May 15, 2014

From: Walter Van Assche Walter.VanAssche@wis.kuleuven.be
Subject: Message from the Chair

As of May 15, 2014 our activity has 114 members. This is not such an
impressive number and it is very low compared to the earlier days of the
activity group. (We reached a level of 172 members in the 1990s.)
The average number of members over the years is 147. About 42% of the
members are from the USA and 33% from Europe; the remaining members are
from South and Central America, Asia, Australia/New Zealand, Canada and
Africa. Most members are from mathematics departments (73%) but
engineering, physics, and computational sciences are also well represented with
8% each. We are the smallest activity group of all, the largest is Computational
Science and Engineering with more than 2000 members and our closest
neighbor is Geometric Design with about 150 members. What can we do about
this low membership? Well, there is a lot of potential growth in the number of
student members. There is free membership for graduate students from an
academic member of SIAM and at present there are 400 academic members. So
please check whether your university or institute is an academic member
(http://siam.org/membership/academic/academic_members.php)
and if so tell your students to join SIAM for free and to join our activity group
Another possibility is to nominate up to two students per year for free
membership in SIAM
In my previous message (OP-SF NET 21.1), I made a call for volunteers wanting
to help out with the newsletter and the website and I raised the idea of starting
a blog. I received very little response: in fact only one person mailed me saying
that the idea of starting a blog is interesting, and he referred to the n-Category
Café (http://golem.ph.utexas.edu/category/). So I repeat my call for volunteers
for the newsletter/website/blog.

Topic #2 --------- OP-SF NET 21.3 --------- May 15, 2014

From: Walter Van Assche Walter.VanAssche@wis.kuleuven.be
Subject: OPSFA Steering Committee

The OPSFA Steering Committee was founded during the OPSFA-11 meeting in
Leganés (Spain) in 2011. Its main task is to coordinate (but not to organize) the
international meetings in the OPSFA community, such as the biennial international symposium on "Orthogonal Polynomials, Special Functions and Applications" and summer schools. The Steering Committee consists of three local organizers of the past five OPSFA meetings and a representative of the SIAM Activity Group on Orthogonal Polynomials and Special Functions (not necessarily the chair). The first committee consisted of Francisco Marcellán (SIAG chair), Christian Berg (OPSFA-7), Walter Van Assche (OPSFA-10) and Guillermo López Lagomasino (OPSFA-11). The Steering Committee members have agreed that from 2014 on the committee will consist of Walter Van Assche (OPSFA-10 and SIAG chair), Guillermo López Lagomasino (OPSFA-11), Mohamed Jalel Atia (OPSFA-12) and Diego Dominici (SIAG program director). Any suggestions for future OPSFA conferences and summer schools should be directed to the Steering Committee who will get in touch with all people involved. 

http://wis.kuleuven.be/events/OPSFA/Steering

---

**Topic #3**

**OP-SF NET 21.3**

---

**May 15, 2014**

From: OP-SF NET Editors
Subject: OPSFA-13 in Gaithersburg, MD

The 13th International Symposium on Orthogonal Polynomials, Special Functions and Applications (OPSFA13) will be held at NIST (National Institute of Standards and Technology), Gaithersburg, MD (near Washington, DC), USA during the period June 1-5, 2015.

The following information is from the web site

http://www.siam.org/meetings/opsfa13/

**Conference Co-Chairs:**
Daniel W. Lozier, National Institute of Standards and Technology, USA
Diego Dominici, State University of New York at New Paltz, USA

**Scientific Committee:**
Richard A. Askey, University of Wisconsin, USA
Howard S. Cohl, National Institute of Standards and Technology, USA
Kathy Driver, University of Cape Town, South Africa
Tom H. Koornwinder, University of Amsterdam, The Netherlands
Robert S. Maier, University of Arizona, USA
Zeinab Mansour, King Saud University, Saudi Arabia
Andrei Martinez-Finkelshtein, Universidad de Almería, Almeria, Spain
Willard Miller, University of Minnesota, USA
Victor H. Moll, Tulane University, USA
Adri Olde Daalhuis, The University of Edinburgh, United Kingdom
Audrey Terras, University of California San Diego, USA
Walter Van Assche, Katholieke Universiteit Leuven, Belgium
Luc Vinet, University of Montreal, Canada
Invited Speakers:
Percy Deift, Courant Institute of Mathematical Sciences, New York University, USA
Charles F. Dunkl, University of Virginia, USA
Olga Holtz, Technische Universität Berlin, Germany
Mourad E.H. Ismail, University of Central Florida, USA
Teresa E. Pérez Fernández, Universidad de Granada, Spain
Sarah Post, University of Hawaii at Manoa, USA
Nico Temme, Centrum Wiskunde & Informatica (CWI), The Netherlands
Craig A. Tracy, University of California Davis, USA
Lauren Williams, University of California Berkeley, USA
Wadim Zudilin, The University of Newcastle, Australia
Alexei Zhedanov, Donetsk Institute for Physics and Technology, Ukraine

The call for papers will be posted June 2014.

Topic #4  ----------  OP-SF NET 21.3  ----------  May 15, 2014

From: Elena Berdysheva  
Subject: Question on spherical Bessel functions

Working on a so-called discrete Turán problem for \( \ell \)-1 radial functions, Professor Berens and I arrived at the following monotonicity property of spherical Bessel functions. For a given \( \nu \in \mathbb{N} \), let \( \{\lambda_{n,\nu}\}_{n=1}^{\infty} \) be the positive roots of the spherical Bessel function \( j_\nu(x) = (\pi/(2x))^{1/2}J_{\nu+1/2}(x) \) in increasing order.

**Conjecture.**

For \( n = 2, 3, \ldots \),

\[
\frac{(-j_\nu'(\lambda_{n,\nu}))}{\int_0^{\lambda_{n,\nu}} j_\nu(\tau) \, d\tau} < \frac{(-j_\nu'(\lambda_{1,\nu}))}{\int_0^{\lambda_{1,\nu}} j_\nu(\tau) \, d\tau}.
\]

Note that the integrals \( \int_0^{\lambda_{n,\nu}} j_\nu(\tau) \, d\tau \) are always positive (R. G. Cooke). On the other hand, \( j_\nu'(\lambda_{n,\nu}) \) is negative for odd \( n \) and positive for even \( n \). This means that the inequality is trivial for even \( n \), and we only need to prove it for odd \( n \).

We can prove this conjecture for \( \nu = 0, 1, 3, \) and \( 5 \). Our method is quite straightforward (a Sonine type argument), and it does not seem to be extendable to higher values of \( \nu \). We would be thankful for any hints and ideas concerning the conjecture, and we are open for collaboration on this subject. Please contact me at elena.berdysheva@gutech.edu.om.
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 March and April 2014.

http://arxiv.org/abs/1311.0028
Legendre-Gauss-Lobatto grids and associated nested dyadic grids
Kolja Brix, Claudio Canuto, Wolfgang Dahmen

http://arxiv.org/abs/1311.0681
Computation of the Marcum Q-function
A. Gil, J. Segura, N.M. Temme

http://arxiv.org/abs/1403.0483
A hypergeometric basis for the Alpert multiresolution analysis
Jeffrey S. Geronimo, Plamen Iliev

http://arxiv.org/abs/1403.1654
The monodromy representation of Lauricella's hypergeometric function F_C
Yoshiaki Goto

http://arxiv.org/abs/1403.1833
Expansions of the solutions to the confluent Heun equation in terms of the Kummer confluent hypergeometric functions
T.A. Ishkhanyan, A.M. Ishkhanyan

http://arxiv.org/abs/1403.1884
Confluent hypergeometric expansions of the solutions of the double-confluent Heun equation
T.A. Ishkhanyan, A.M. Ishkhanyan

On multiserver retrial queues: history, Okubo-type hypergeometric systems and matrix continued-fractions
F. Avram, D. Matei, Y.Q. Zhao

http://arxiv.org/abs/1403.3607
Certain Transformations for Hypergeometric series in $p$-adic setting
Rupam Barman, Neelam Saikia

http://arxiv.org/abs/1403.5232
Some supercongruences occurring in truncated hypergeometric series
Ling Long, Ravi Ramakrishna
Evaluations of some terminating hypergeometric $\text{}_{2}F_{1}(2)$ series
Y S Kim, A K Rathie, R B Paris

Hypergeometric expansions of the solutions of the general Heun equation governed by two-term recurrence relations for expansion coefficients
T.A. Ishkhanyan, T.A. Shahverdyan, A.M. Ishkhanyan

Geometric properties of basic hypergeometric functions
Sarita Agrawal, Swadesh Sahoo

Orthogonal polynomials for Minkowski's question mark function
Zoé Dresse, Walter Van Assche

Identification of the theory of multidimensional orthogonal polynomials with the theory of symmetric interacting Fock spaces with finite dimensional one particle space
Luigi Accardi, Abdessatar Barhoumi, Ameur Dhahri

On Nikishin systems with discrete components and weak asymptotics of multiple orthogonal polynomials
A. I. Aptekarev, G. López Lagomasino, A. Martínez-Finkelshtein

Spatiotemporal Orthogonal Polynomial Approximation for Partial Differential Equations
Samir Kumar Bhowmik, Sharanjeet Dhawan

On Sobolev orthogonal polynomials
F. Marcellan, Y. Xu

Orthogonal polynomials for area-type measures and image recovery
E. B. Saff, H. Stahl, N. Stylianopoulos, V. Totik

New Recurrence Relationships between Orthogonal Polynomials which Lead to New Lanczos-type Algorithms
Muhammad Farooq, Abdellah Salhi

Orthogonal polynomials associated with Coulomb wave functions
Frantisek Stampach, Pavel Stovicek
Orthogonal polynomials associated with the deltoid curve
Olfa Zribi (IMT)

Triangular random matrices and biorthogonal ensembles
Dimitris Cheliotis

Existence and Orthogonality of Generalized Jack Polynomials and Its $q$-Deformation
Yusuke Ohkubo

On the existence of orthogonal polynomials for oscillatory weights on a bounded interval
Hassan Majidian

Toda-Schrödinger correspondence and orthogonal polynomials
Satoshi Tsujimoto, Alexei Zhedanov

Bootstrapping and Askey-Wilson polynomials
Jang Soo Kim, Dennis Stanton

Beyond Zudilin's Conjectured $q$-analogue of Schmidt's problem
Thotsaporn Aek Thanatipanonda

The Stokes phenomenon for the Ramanujan's $q$-difference equation and its higher order extension
Takeshi Morita

The Hahn-Exton $q$-Bessel function as the characteristic function of a Jacobi matrix
Frantisek Stampach, Pavel Stovicek

Recent software developments for special functions in the Santander-Amsterdam project
A. Gil, J. Segura, N. M. Temme

Computation of a numerically satisfactory pair of solutions of the differential equation for conical functions of non-negative integer orders
T. M. Dunster, A. Gil, J. Segura, N. M. Temme
http://arxiv.org/abs/1404.0302
The asymptotic and numerical inversion of the Marcum $Q$-function
A. Gil, J. Segura, N. M. Temme

http://arxiv.org/abs/1403.8113
On the complex zeros of Airy and Bessel functions and those of their derivatives
A. Gil, J. Segura

http://arxiv.org/abs/1403.0716
Some asymptotic formulae for Bessel process
Yuu Hariya

http://arxiv.org/abs/1403.6385
Strong convergence rates and temporal regularity for Cox-Ingersoll-Ross
processes and Bessel processes with accessible boundaries
Martin Hutzenthaler, Arnulf Jentzen, Marco Noll

http://arxiv.org/abs/1403.6399
Reconstruction of Support of a Measure From Its Moments
Ashkan Jasour, Constantino Lagoa

http://arxiv.org/abs/1403.7848
On the analytical formulas for three three-particle integrals with spherical Bessel
and Neumann functions
Alexei M. Frolov

Vanishing of certain equivariant distributions on $p$-adic spherical spaces, and
non-vanishing of spherical Bessel functions
Avraham Aizenbud, Dmitry Gourevitch, Alexander Kemarsky

http://arxiv.org/abs/1403.0278
Integral representations and complete monotonicity related to the remainder of
Burnside's formula for the gamma function
Feng Qi

http://arxiv.org/abs/1404.2705
Exactification of Stirling's Approximation for the Logarithm of the Gamma
Function
Victor Kowalenko

http://arxiv.org/abs/1403.6513
Asymptotic Bohr Radius for the Polynomials in One Complex Variable
Cheng Chu

http://arxiv.org/abs/1403.0189
Difference equations of $q$-Appell polynomials
Nazim I. Mahmudov
Matrix-valued Gegenbauer polynomials
Erik Koelink, Ana M. de los Rios, Pablo Roman

Chebyshev polynomials and the Frohman-Gelca formula
Hoel Queffelec, Heather M. Russell

Umbral "classical" polynomials
Alexei Zhedanov

On a Theorem by Bojanov and Naidenov applied to families of Gegenbauer-Sobolev polynomials
Vanessa G. Paschoa, Dilcia Pérez, Yamilet Quintana

New families of q and (q;p)-Hermite polynomials
Mahouton Norbert Hounkonnou, Sama Arjika, Won Sang Chung

On the asymptotics of a sequence of lacunary binomial-type polynomials
R B Paris

Exponential asymptotics of the Voigt functions
R B Paris

An asymptotic expansion for the generalised quadratic Gauss sum revisited
R B Paris

Generalization of a quadratic transformation due to Exton
Y S Kim, A K Rathie, R B Paris

Asymptotics of the Wright function $\Psi_1(z)$ on the Stokes lines
Richard B Paris

On the explicit representation of orthonormal Bernstein polynomials
Michael A. Bellucci

Recurrences for Eulerian polynomials of type B and type D
Matthew Hyatt
Chebyshev Polynomials on a System of Continua
V. V. Andrievskii

http://arxiv.org/abs/1404.7252
Multivariate circular Jacobi polynomials
Genki Shibukawa

http://arxiv.org/abs/1404.7400
The Evaluation of the Sums of More General Series by Bernstein Polynomials
Mehmet Acikgoz, Ilknur Koca, Serkan Araci

http://arxiv.org/abs/1404.7491
Multivariate Meixner, Charlier and Krawtchouk polynomials
Genki Shibukawa

http://arxiv.org/abs/1403.4558
Zeta functions over zeros of Zeta functions and an exponential-asymptotic view of the Riemann Hypothesis
André Voros

http://arxiv.org/abs/1403.5786
Large proportion of the zeros of the Riemann zeta function on the critical line
Sergei Preobrazhenskii, Tatyana Preobrazhenskaya

http://arxiv.org/abs/1403.4484
Asymptotic of the generalized Li's sums which non-negativity is equivalent to the Riemann Hypothesis
Sergey K. Sekatskii

http://arxiv.org/abs/1403.7126
On the distribution (mod 1) of the normalized zeros of the Riemann Zeta-function
Juan Arias de Reyna

http://arxiv.org/abs/1404.1717
Riemann hypothesis and the arc length of the Riemann $Z(t)$-curve
Jan Moser

http://arxiv.org/abs/1404.6649
On the large values of the Riemann zeta-function on short segments of the critical line
M.A.Korolev

http://arxiv.org/abs/1404.7276
First applications of generalized Li's criterion to study the Riemann zeta-function zeroes location
Sergey Sekatskii
Topic #6        --------  OP-SF NET 21.3        --------  May 15, 2014

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 115 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:

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 Diego Dominici (dominicd@newpaltz.edu) and Martin Muldoon (muldoon@yorku.ca).

Back issues of OP-SF NET can be obtained at the WWW addresses:
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 or to see a link the archive of all messages, go to [http://lists.siam.org/mailman/listinfo/siam-OPSF](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 email 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](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
WWW: [http://www.siam.org](http://www.siam.org)
[http://www.siam.org/membership/outreachmem.htm](http://www.siam.org/membership/outreachmem.htm)

---

**Topic #7**

**OP-SF NET 21.3**

**May 15, 2014**

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 or muldoon@yorku.ca. Contributions to OP-SF NET 21.4 should be sent by July 1, 2014.

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.

Information on joining SIAM and this activity group: service@siam.org
The elected Officers of the Activity Group (2014-2016) are:
Chair: Walter Van Assche
Vice Chair: Jeff Geronimo
Program Director: Diego Dominici
Secretary: Yuan Xu
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