O P - S F N E T - Volume 19, Number 4 – July 15, 2012

Editors:

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The Electronic News Net of the SIAM Activity Group on Orthogonal Polynomials and Special Functions http://math.nist.gov/opsf/ Please send contributions to: poly@siam.org Subscribe by mailing to: poly-request@siam.org or to: listproc@nist.gov

Topics:

- 1. Gabor Szegő Prize, call for nominations (reminder)
- 2. Munich Conference on Harmonic Analysis, Convolution Algebras, and Special Functions
- 3. Update on Patras Conference in memory of P. D. Siafarikas
- 4. Passing of Pablo Gonzalez Vera
- 5. Computer Algebra & Orthogonal Polytnomials
- 6. Report on Santander Workshop on Numerical Software
- 7. Preprints in arXiv.org
- 8. About the Activity Group
- 9. Submitting contributions to OP-SF NET and SIAM-OPSF (OP-SF Talk)

Calendar of Events:

July 15 - 20, 2012

III Jaen Conference on Approximation. Ubeda, Spain, July 15-20, 2012. http://jja.ujaen.es 19.2 #3

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 19.4 #3 http://www.icddesf.upatras.gr/

September 10-14, 2012

Conference on "Harmonic Analysis, Convolution Algebras, and Special Functions", Munich, Germany 19.4 #2 http://www.helmholtz-muenchen.de/en/ibb/hacas2012

September 19-25, 2012

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

October 27-28, 2012

American Mathematical Society, Western Section Meeting, Tucson AZ, including a Special Session on 'Special Functions and Orthogonal Polynomials" organized by Diego Dominici, Tim Huber and Robert Maier.

http://www.ams.org/meetings/sectional/2203_program.html

November 5-7, 2012

Ramanujan 125 - A conference to commemorate the 125th anniversary of Ramanujan's birth, Gainesville FL, USA 19.3, #3 http://www.math.ufl.edu/~fgarvan/ramanujan125.html

March 25-2, 2013

12th International Symposium on Orthogonal Polynomials, Special Functions and Applications (OPSFA-12), Sousse, Tunisia 19.1, #2 19.3, #4 http://matematicas.uc3m.es/index.php/seminarios/intern-meet-menu/12th-opsfa

February 20-21, 2013

Conference on Special Functions and Orthogonal Polynomials, Riyadh, Saudi Arabia http://spconf.ksu.edu.sa/node/69

June 12-15, 2013

The Third International Conference Nonlinear Waves --- Theory and Applications, Beijing, China http://lsec.cc.ac.cn/~icnwta3/

July 1-5, 2013

"Special Functions and Orthogonal Polynomials" The 6th Pacific RIM Conference on Mathematics, Sapporo City, Japan http://www.math.sci.hokudai.ac.jp/sympo/130701/sessions.html

July 1-6, 2013

Erdős Centennial Conference, Budapest, Hungary http://www.renyi.hu/conferences/erdos100/

July 8-12, 2013

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

Topic #1 ----- OP-SF NET 19.4 ------ July 15, 2012

From: Tom Koornwinder T.H.Koornwinder@uva.nl Subject: Gabor Szegő Prize, call for nominations (reminder)

[This was circulated to SIAM-OPSF on June 19, 2012. The submission information is changed from that in our May 15 issue.]

As was already communicated in OP-SF NET of May 15, 2012, nominations can be submitted now for the second award of the Gábor Szegő Prize. Read the details at

http://www.siam.org/prizes/nominations/nom_siag_szego.php

The prize will be awarded to an early-career researcher for outstanding research contributions in the area of orthogonal polynomials and special functions. Candidates should have at most 10 years (full time equivalent) of involvement in mathematics since PhD at the award date, allowing for breaks in continuity.

The selection committee consists of

Kathy Driver Charles Dunkl Tom H. Koornwinder Francisco Marcellán (Chair) Walter Van Assche

CHANGED SUBMISSION ADDRESS

Nominations should be sent with attachments to szego_prize@siam.org by September 15, 2012. (This is different from what was written in OP-SF NET of May 15, 2012.) Preferably also send a copy of the submission to the chair of the selection committee cpacomarc@ing.uc3m.es>.

A valid nomination requires 1.) A letter of nomination signed by two members of the SIAG/OPSF and 2.) the nominee's CV. The letter should indicate 3.) the paper(s) cited for the work being recognized, explain the significance of the work, and (in the case of multiple authors) indicate the contribution of the nominee.

If you are not a member of SIAM/OPSF and know a suitable candidate for the prize, but have difficulty finding two SIAM/OPSF members willing to sign the nomination, please contact one of the members of the selection committee for suggestions about names of members.

Topic #2 ----- OP-SF NET 19.4 ----- July 15, 2012

From: Michael Voit voit@mathematik.tu-dortmund.de Subject: Munich Conference on Harmonic Analysis, Convolution Algebras, and Special Functions

There will be a conference on "Harmonic Analysis, Convolution Algebras, and Special Functions" at the Technische Universität München (Munich, Germany, Campus Garching), September 10 - 14, 2012.

The aim of the conference is to bring together a wide variety of researchers with an interest in Harmonic Analysis and Special Functions.

Confirmed plenary speakers will be Philippe Bougerol, Charles Dunkl, Herbert Heyer, Tom Koornwinder, Krzystof Stempak, Ryszard Szwarc and Yuan Xu.

More details can be found on the home page

http://www.helmholtz-muenchen.de/en/ibb/hacas2012

We still have limited space for additional participants and talks. If you are interested, you can register for the conference under the home page above. This home page will be updated regularly. The length of the talks will be between 25 and 50 minutes.

If you have any queries, please feel free to contact one of the organizers:

For general questions: Rupert Lasser: lasser@helmholtz-muenchen.de Margit Roesler: roesler@math.uni-paderborn.de Michael Voit: voit@mathematik.tu-dortmund.de

For local organization (accommodation, local transportation): Josef Obermaier: josef.obermaier@helmholtz-muenchen.de (until end of August) Andreas Weinmann: andreas.weinmann@helmholtz-muenchen.de

Please feel free to distribute this mail also to other possibly interested colleagues.

Topic #3 ----- OP-SF NET 19.4 ----- July 15, 2012

From: Martin Muldoon muldoon@yorku.ca Subject: Update on 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.

This was announced in OP-SF NET 19.1, #4. There are some changes in the

list of speakers. Here is the updated list:

Plenary Speakers:

- Dimitar Dimitrov (Universidad Estadual Paulista, Brazil)
- John R. Graef (University of Tennessee at Chattanooga, U.S.A.)
- Alex Himonas (University of Notre Dame, USA)
- Javier Segura (University of Cantabria, Spain)

Invited Speakers:

- Árpád Baricz (Babeş-Bolyai University, Romania)
- Zuzana Došlá (Masaryk University, Czech Republic)
- Kathy Driver (University of Cape Town, South Africa)
- István Győri (University of Pannonia, Hungary)
- Mihály Pituk (University of Pannonia, Hungary)
- Luis Velazquez (University of Zaragoza, Spain)

Other talks will include "Professor Siafarikas and his work" by Evangelos Ifantis, University of Patras.

For more information, see the conference web site: http://www.icddesf.upatras.gr/

Topic #4 ----- OP-SF NET 19.4 ----- July 15, 2012

From: Paco Marcellán pacomarc@ing.uc3m.es Subject: Passing of Pablo Gonzalez Vera

I regret to announce that Pablo Gonzalez Vera, Professor at Universidad de La Laguna (ULL), Canary Islands, Spain, passed away early on the morning Wednesday, July 11 at the age of 57.

Pablo was the leader of the team on rational orthogonal functions, numerical integration and polynomial and rational approximation based at ULL. He was coauthor (with A. Bultheel, E. Hendriksen and O. Njåstad) of the monograph Orthogonal Rational Functions, Cambridge Monographs on Applied and

Computational Mathematics, Cambridge University Press 1999, the main reference work on this topic with 111 citations. Pablo is listed in MathSciNet as an author of 157 papers and monographs. He was the advisor of many PhD students in ULL and contributed to the growth and expansion of the above topics in Spain and abroad.

I shared not only his passion for Mathematics but also as a runner. In many meetings, Pablo was my companion in training for long distance races. He was a supporter of Barcelona FC and I recall a night in Trondheim (together with Leuven, one of Pablo's favourite places) enjoying a final game of the Spanish Cup won by Barcelona FC. Walter van Assche and Guillermo Lopez Lagomasino also witnessed Pablo's joy with this sport success. A bottle of Chablis was opened.... and finished to celebrate it.

Our sympathies go to Pablo's wife Rosa, to their children Laura and Jorge, and to all his friends.

Topic #5 ----- OP-SF NET 19.4 ----- July 15, 2012

From: Wolfram Koepf koepf@mathematik.uni-kassel.de Subject: Computer Algebra & Orthogonal Polytnomials

"CAOP - Computer Algebra & Orthogonal Polytnomials" is a web tool for calculating formulas for orthogonal polynomials belonging to the Askey-Wilson scheme using Maple. With the present version which is available on the site http://www.caop.org/

users can compute recurrence, differential and difference equations, without having Maple installed on their own computer. It is also possible to multiply the polynomial family by a scaling function, to change the argument and to give values to the parameters before doing the calculations.

All computations in CAOP are performed by calling procedures either from hsum15 ("Hypergeometric Summation") or qsum15 ("q-Hypergeometric Summation") by Wolfram Koepf, University of Kassel, which are part of the book Hypergeometric Summation, Vieweg, Braunschweig/Wiesbaden, 1998.

The implementation of CAOP was originally done by René Swarttouw as part of the Askey-Wilson Scheme Project performed at RIACA in Eindhoven in 2004. The present site http://www.caop.org/ is a completely revised version of this project which has been done by Torsten Sprenger under supervision of Wolfram Koepf in 2012 and is maintained by Wolfram Koepf at the University of Kassel.

Topic #6 ----- OP-SF NET 19.4 ----- July 15, 2012

From: Nico Temme Nico.Temme@cwi.nl Subject: Report on Santander Workshop on Numerical Software

Numerical Software: Design, Analysis and Verification, Santander, Spain, July 4-6 2012. Local organizers: Amparo Gil and Javier Segura of the Universidad de Cantabria, Santander.

This workshop was attended by 21 participants and organized in association with the 2012 meeting of the IFIP working group in Santander (2-3 July).

There were three lectures on software aspects for special functions. Annie Cuyt (Antwerp), presented a talk "Validated Evaluation of Special Mathematical Functions". It was an overview of the Antwerp project with Franky Backeljauw, Stefan Becuwe, Joris van Deun, and others, in which reliable and high-precision algorithms for a class of special functions are considered, by using continued fractions and series expansions.

Daniel Lozier (NIST) discussed a new NIST initiative (together with the Antwerp group and other academic colleagues) in his talk "DLMF tables: A New Source of Data for Mathematical Software Developers". The aim is to produce a system for generating on demand provably correct comparison values of mathematical functions. This system will be incorporated into a future release of the Digital Library of Mathematical Functions.

Together with Amparo Gil and Javier Segura, I presented a talk "Recent Software Developments for Special Functions in the Santander-Amsterdam Project", in which our way of working, our past activities (from 1997), and our future plans were discussed.

There was a cluster of talks on interval analysis, floating point arithmetic, and accurate computations by Nathalie Revol and Jean-Michel Muller (ENS Lyon, France), Javier Bruguera (Santiago de Compostela, Spain), and Philippe Langlois (Perpignan, France). Other lectures were on software aspects for differential equations, linear algebra, and finite element methods.

We look back at an interesting workshop, with nice extras organized by Amparo and Javier (guided visits to Santander, to the Altamira cave reproduction, to Santillana del Mar, the City Council reception) and the ever-present Spanish hospitality.

Topic #7 ----- OP-SF NET 19.4 ------ July 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 May and June 2012.

http://arxiv.org/abs/1205.1453

An asymptotic formula of the divergent bilateral basic hypergeometric series Takeshi Morita

http://arxiv.org/abs/1205.2103

First order non-homogeneous q-difference equation for Stieltjes function characterizing q-orthogonal polynomials J. Arvesú, A. Soria-Lorente

http://arxiv.org/abs/1205.2458

A method for deriving hypergeometric and related identities from the \$H^2\$ Hardy norm of conformal maps Greg Markowsky

http://arxiv.org/abs/1205.6706

 π and other formulae implied by hypergeometric summation theorems Yong Sup Kim, Xiaoxia Wang, Arjun K. Rathie

http://arxiv.org/abs/1206.0350

A new generalization of generalized hypergeometric functions Arjun K. Rathie

http://arxiv.org/abs/1206.4544

The Laplace equation for the exterior of the Hankel contour and novel identities for hypergeometric functions A.S. Fokas, M.L. Glasser

http://arxiv.org/abs/1205.5085

Classical and Sobolev Orthogonality of the Nonclassical Jacobi Polynomials with Parameters $\alpha=\beta=-1$ Andrea Bruder, Lance Littlejohn

http://arxiv.org/abs/1205.5860

Quasi-Hermitian Hamiltonians associated with exceptional orthogonal polynomials Bikashkali Midya http://arxiv.org/abs/1205.6353 Coherent Orthogonal Polynomials E Celeghini, Mariano A del Olmo

http://arxiv.org/abs/1206.4737

Plancherel_Rotach Asymptotics for q-Orthogonal Polynomials Mourad E. H. Ismail, Xin Li

http://arxiv.org/abs/1206.4785

Spectral decomposition and matrix-valued orthogonal polynomials Wolter Groenevelt, Mourad E. H. Ismail, Erik Koelink

http://arxiv.org/abs/1206.4899

The Kontorovich-Lebedev transform as a map between \$d\$-orthogonal polynomials Ana F. Loureiro, S. Yakubovich

http://arxiv.org/abs/1205.6547

Hermite polynomials related to Genocchi, Euler and Bernstein polynomials Serkan Araci, Jong Jin Seo, Mehmet Acikgoz

http://arxiv.org/abs/1205.6590

A note on the Frobenius-Euler numbers and polynomials associated with Bernstein polynomials Serkan Araci, Mehmet Acikgoz

http://arxiv.org/abs/1205.0260

Littlewood Polynomials with Small \$L^4\$ Norm Jonathan Jedwab, Daniel J. Katz, Kai-Uwe Schmidt

http://arxiv.org/abs/1205.0305

Branden's Conjectures on the Boros-Moll Polynomials William Y. C. Chen, Donna Q. J. Dou, Arthur L. B. Yang

http://arxiv.org/abs/1205.0593 Macdonald polynomials as characters of Che

Macdonald polynomials as characters of Cherednik algebra modules Stephen Griffeth

http://arxiv.org/abs/1205.0846 V. Markov's problem for monotone polynomials

Oleksiy Klurman

http://arxiv.org/abs/1205.1933

Power series with positive coefficients arising from the characteristic polynomials of positive matrices Thomas J. Laffey, Raphael Loewy, Helena Šmigoc

http://arxiv.org/abs/1205.4215

The Bannai-Ito polynomials as Racah coefficients of the sl_{-1}(2) algebra Vincent X. Genest, Luc Vinet, Alexei Zhedanov

http://arxiv.org/abs/1205.5383

q-Chebyshev polynomials Johann Cigler

http://arxiv.org/abs/1205.5398

Fibonacci Sequence, Recurrence Relations, Discrete Probability Distributions and Linear Convolution Arulalan Rajan, R. Vittal Rao, Ashok Rao, H. S. Jamadagni

http://arxiv.org/abs/1205.6242

Polynomials with only real zeros and the Eulerian polynomials of type D Shi-Mei Ma

http://arxiv.org/abs/1206.6967

Matrix Polynomials with Specified Eigenvalues Michael Karow, Emre Mengi

http://arxiv.org/abs/1206.2988

Generalised Heine-Stieltjes and Van Vleck polynomials associated with degenerate, integrable BCS models Ian Marquette, Jon Links

http://arxiv.org/abs/1206.1526

Fejér-Riesz factorizations and the structure of bivariate polynomials orthogonal on the bi-circle Jeffrey S. Geronimo, Plamen Iliev

http://arxiv.org/abs/1206.3495

On Mittag-Leffler function and associated polynomials D. Babusci, G. Dattoli, K. Górska

http://arxiv.org/abs/1206.3632

Locating the eigenvalues of matrix polynomials Dario A. Bini, Vanni Noferini, Meisam Sharify

http://arxiv.org/abs/1206.5371 A note on Barker polynomials Peter Borwein, Tamas Erdelyi

http://arxiv.org/abs/1206.5433

On the families of q-Euler numbers and polynomials and their applications Serkan Araci, Mehmet Acikgoz, Hassan Jolany

http://arxiv.org/abs/1205.7037 -1 Krall-Jacobi Polynomials Luc Vinet, Guo-Fu Yu, Alexei Zhedanov

http://arxiv.org/abs/1205.1112

A function Class of strictly positive definite and logarithmically completely monotonic functions related to the modified Bessel functions Jamel El Kamel, Khaled Mehrez

http://arxiv.org/abs/1206.4814

Log-concavity for series in reciprocal gamma functions and applications S. I. Kalmykov, D. B. Karp

http://arxiv.org/abs/1206.1992

Identities for the Hurwitz zeta function, Gamma function, and L-functions Michael O. Rubinstein

http://arxiv.org/abs/1205.1696

Galois theories for \$q\$-difference equations: comparison theorems Lucia Di Vizio, Charlotte Hardouin

http://arxiv.org/abs/1205.5455

How to prove Ramanujan's \$q\$-continued fractions Gaurav Bhatnagar

http://arxiv.org/abs/1205.0037

On Mordell-Tornheim sums and multiple zeta values David M. Bradley, Xia Zhou

http://arxiv.org/abs/1205.0303

A Central Limit Theorem for the Zeroes of the Zeta Function Brad Rodgers

http://arxiv.org/abs/1205.0609

Depth reduction of a class of Witten zeta functions David M. Bradley, Tianxin Cai, Xia Zhou

http://arxiv.org/abs/1205.0636

A Necessary Condition for a Nontrivial Zero of the Riemann Zeta Function via the Polylogarithmic Function Lazhar Fekih-Ahmed (ENIT)

http://arxiv.org/abs/1205.2161

On the higher derivatives of Z(t) associated with the Riemann Zeta-Function Kaneaki Matsuoka

http://arxiv.org/abs/1206.1801

On an inequality for the Riemann zeta-function in the critical strip Sadegh Nazardonyavi, Semyon Yakubovich

http://arxiv.org/abs/1205.2101

Riemann-Hilbert Approach to the Six-Vertex Model Pavel Bleher, Karl Liechty

http://arxiv.org/abs/1205.5604

Nonlinear steepest descent and the numerical solution of Riemann-Hilbert problems Sheehan Olver, Thomas Trogdon

http://arxiv.org/abs/1206.1166

Integral and series transformations via Ramanujan's identities and Salem's type equivalences to the Riemann hypothesis Semyon Yakubovich

http://arxiv.org/abs/1206.2435

Ramanujan's $\{1\psi_1\}$ summation S. Ole Warnaar

http://arxiv.org/abs/1205.3485

Generalized modular forms including the weak Maass forms, the Ramanujan's Theta functions and the Tau function Christian Pierre

http://arxiv.org/abs/1206.3981 Ramanujan series upside-down Jesús Guillera, Mathew Rogers

http://arxiv.org/abs/1206.4456

Discrete Painleve II equation over finite fields Masataka Kanki, Jun Mada, K. M. Tamizhmani, Tetsuji Tokihiro

http://arxiv.org/abs/1206.5963

Symmetries of quantum Lax equations for the Painlevé equations Hajime Nagoya, Yasuhiko Yamada

Topic #8 ----- OP-SF NET 19.4 ----- July 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). 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: 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 subscribe or to see a link the archive of all messages, 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 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 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/membership/outreachmem.htm

Topic #9 ----- OP-SF NET 19.4 ----- July 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 or muldoon@yorku.ca .

Contributions to OP-SF NET 19.5 should be sent by September 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.

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 (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