OP-SF NET - Volume 20, Number 1 – January 15, 2013

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

February 20-21, 2013
Conference on Special Functions and Orthogonal Polynomials, Riyadh, Saudi Arabia
http://spconf.ksu.edu.sa/node/69

March 4-8, 2013
Whittaker Functions, Schubert calculus and Crystals, Providence, RI, USA
http://icerm.brown.edu/sp-s13-w2

March 24-29, 2013
12th International Symposium on Orthogonal Polynomials, Special Functions
and Applications (OPSFA-12), Sousse, Tunisia
http://matematicas.uc3m.es/index.php/seminarios/intern-meet-menu/12th-opsfa

May 20-24, 2013
International Conference on Approximation Theory and Applications, Hong Kong, China.
http://www6.cityu.edu.hk/ma/maicata

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June 3-7, 2013
International Linear Algebra Society (ILAS) 2013 meeting, Providence Rhode Island, USA, including an invited minisymposium on Matrices and Orthogonal Polynomials organized by J.S. Geronimo, F. Marcellán and L. Reichel
http://ilas2013.com

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
The 6th Pacific RIM Conference on Mathematics, including Session on "Special Functions and Orthogonal Polynomials", Sapporo City, Japan
http://www.math.sci.hokudai.ac.jp/symposium/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 “Orthogonal Polynomials and Special Functions” as one of 17 themes) 18.5 #3
http://www.siam.org/meetings/an13/

July 15-19, 2013
Workshop "Elliptic Integrable Systems and Hypergeometric Functions", Leiden, The Netherlands 19.5 #6
www.lorentzcenter.nl/lc/web/2013/541/info.php3?wsid=541&venue=Oort

July 21-26, 2013
PODE Progress on Difference Equations, Bialystok, Poland
http://katmat.pb.bialystok.pl/pode13/

August 26-30, 2013
Formal and Analytic Solutions of Differential, Difference and Discrete Equations, Będlewo, Poland
It is a pleasure to announce that Jacob Stordal Christiansen is the recipient of the second (2013) Gabor Szegő prize presented by the SIAM Activity Group on Orthogonal Polynomials and Special Functions.

On the basis of the evaluation of the originality, independence and importance of his work, the Committee (K. Driver, C. Dunkl, T. H. Koornwinder, F. Marcellán (Chair) and W. Van Assche) made the nomination that was approved by SIAM Vice-President at Large Nick Higham.

Jacob Christiansen obtained his PhD at the University of Copenhagen in October 2004, with Christian Berg as his supervisor. The title of his thesis was “Indeterminate moment problems within the Askey-scheme”. Since then he has been a postdoc at Katholieke Universiteit Leuven (1 year) and a Harry Bateman Research Instructor at CalTech (3 years). Starting in November 2008 he was an Assistant Professor (Steno Research Fellow) at the University of Copenhagen. In September 2012 he joined the Centre for Mathematical Sciences in Lund University, Sweden, as an Associate Professor.

The papers mentioned in his nomination were
- Finite gap Jacobi matrices I. The isospectral case, Constr. Approx. 32 (2010), 1–65 (with B. Simon and M. Zinchenko)
- Finite gap Jacobi matrices II. The Szegő class, Constr. Approx. 33 (2011), 365–403 (with B. Simon and M. Zinchenko)

as well as the paper
- Finite gap Jacobi matrices III. Beyond the Szegő class, Constr. Approx. 35 (2012), 259–272 (with B. Simon and M. Zinchenko)

since it is a continuation of the papers mentioned in the nomination.

His PhD thesis work on moment problems, resulting in several well cited papers including his 2006 paper with Ismail, was already very interesting work in a classical subject, with applications for the evaluation of certain integrals. But his really outstanding work started when he extended his interest to operator theory, in particular Jacobi matrices, which resulted in a very nice set of papers on finite gap Jacobi matrices. This is the result of his postdoctoral position at the California Institute of Technology (2005–2008) where he was able to work with B. Simon. This set of papers (117 pages of intricate mathematics) is a very profound and fairly complete analysis of this class of Jacobi matrices. According
to Barry Simon’s letter “Jacob took to it like a fish to water and soon Jacob was giving me tutorials on the subject”.

The even more difficult problem of infinitely many gaps was worked out for Parreau-Widom sets and this is his strongest paper so far.

Jacob is very much present in the OPSF community as a participant in many of the OPSF conferences and other conferences and workshops within this area. He was one of the local organizers of the Seventh International Symposium on Orthogonal Polynomials, Special Functions and Applications in Copenhagen (August 18–22, 2003) and one of the editors of the proceedings, published in J. Comput. Appl. Math. 178 in 2005. He was an invited plenary speaker at the international conference on Asymptotics and Special Functions in Hong Kong (June, 2011).

The award will be presented during the opening ceremony of the 12th International Symposium OPSFA to be held at Sousse, Tunisia, March 24 -29, 2013.

**Topic #2       OP-SF NET 20.1      January 15, 2013**

From: Tom Koornwinder  
T.H.Koornwinder@uva.nl
Subject: Honorary doctorates for Andrews, Askey and Berndt

[This message was distributed to SIAM-OPSF on January 1, 2013]

Quoting from The Times of India (http://tinyurl.com/an5h9cn):

"Three renowned mathematicians who had worked on the theorems of Srinivasa Ramanujan were conferred D Sc (honoris causa) by SASTRA University in Kumbakonam, the birthplace of the mathematics genius in Thanjavur district, on the second day of a two day conference organized to mark his 125th birth anniversary.
The degrees were handed over to George E. Andrews of Pennsylvania State University, USA, Richard A. Askey of University of Wisconsin, Madison, USA and Bruce C. Berndt of University of Illinois, USA, by L. Rajagopalan, a 93-year-old mathematics teacher from Kumbakonam."

Congratulations to George, Dick and Bruce.
Tom Koornwinder
Topic #3  --------- OP-SF NET 20.1  --------- January 15, 2013

From: OP-SF NET Editors
Subject: Barry Simon wins IAMP Henri Poincaré Prize

Barry Simon is one of the four 2012 winners of the International Association of Mathematical Physics *Henri Poincaré Prize*. According to the citation at http://www.iamp.org/page.php?page=page_prize_poincare :

"Barry Simon is honored for his impact on many areas of mathematical physics including, in particular, the spectral theory of Schrödinger operators, for his mentoring of generations of young scientists, and for his lucid and inspirational books."

See also the *laudatio* by Percy Deift at http://www.iamp.org/poincare/bs12-laud.pdf

Topic #4  --------- OP-SF NET 20.1  --------- January 15, 2013

From: OP-SF NET Editors
Subject: CAP-CRM prize for Luc Vinet

The Canadian Association of Physicists (CAP) and the Centre de Recherches Mathématiques (CRM) are pleased to announce that the 2012 CAP – CRM Prize in Theoretical and Mathematical Physics is awarded to Luc Vinet, Université de Montréal, for his outstanding and continued contributions to mathematical physics, mainly based on the study of symmetries, algebraic structures, and special functions. See page 10 of the Fall 2012 CRM Bulletin at http://www.crm.umontreal.ca/docs/docBul_an.shtml

Topic #5  --------- OP-SF NET 20.1  --------- January 15, 2013

From: Christian Krattenthaler christian.krattenthaler@univie.ac.at
Subject: Positions in Algorithmic and Enumerative Combinatorics in Austria

[This message was distributed to SIAM-OPSF on December 17, 2012]

The Special Research Program (SFB) "ALGORITHMIC AND ENUMERATIVE COMBINATORICS," a four-year programme (March 1, 2013 - Feb. 28, 2017) funded by the Austrian Science Foundation FWF, is offering post- and pre-doctoral positions at each of its three associated research groups at the University of Vienna, at the RISC of the Johannes Kepler University Linz, and at the Vienna University of Technology.

"Algorithmic and Enumerative Combinatorics," as we understand it, is the general research area which is defined by the interplay of the fields of Enumerative Combinatorics, Analytic Combinatorics, and Algorithmics.
The SFB will join the forces of the Combinatorics Group at the University of Vienna, the Algorithmic Combinatorics Group at the RISC, and the Algorithms Group at the Vienna University of Technology, in order to significantly advance our knowledge in this branch of Combinatorics and related fields.

The SFB consists of eight project parts, run by:

Michael Drmota (TU Wien)
Bernhard Gittenberger (TU Wien)
Manuel Kauers (RISC Linz)
Christian Krattenthaler (Universität Wien)
Peter Paule (RISC Linz)
Veronika Pillwein (RISC Linz)
Michael Schlosser (Universität Wien)
Carsten Schneider (RISC Linz)

For more specific information see the SFB WWW Site  
https://www.sfb050.risc.jku.at/

We explicitly encourage female researchers to apply for the offered positions. We guarantee that the selection process, based solely on the research records, will give equal opportunities to female and male researchers.

Interested applicants should submit an application with CV, list of publications, an indication with whom the applicant would like to work (multiple choice is possible), and in addition ask 2 (for postdocs), respectively 1 (for pre-docs), people to send letters of evaluation, no later than JANUARY 31, 2013.

The application should be done using the website

https://www.sfb050.risc.jku.at/application

Late applications will be considered until all the positions are filled
For more detailed information see the SFB WWW Site

https://www.sfb050.risc.jku.at/

General enquiries about the programme and the opportunities it is offering for young researchers should be made in the first instance to the Speaker of the SFB, Christian Krattenthaler (Christian.Krattenthaler@univie.ac.at).

Other recent articles of interest in the Notices include:

**Srinivasa Ramanujan: Going Strong at 125, Parts I and II**

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 2012.

  Jacobi operator, q-difference equation and orthogonal polynomials
  **Lazhar Dhaouadi, Mohamed Jalel Atia**

  Discrete semiclassical orthogonal polynomials of class one
  **Diego Dominici, Francisco Marcellan**

  Weighted Sobolev orthogonal polynomials on the unit ball
  **Teresa E. Perez, Miguel A. Pinar, Yuan Xu**

  New families of superintegrable systems from Hermite and Laguerre exceptional orthogonal polynomials
  **Ian Marquette, Christiane Quesne**

  Orthogonal Basic Hypergeometric Laurent Polynomials
  **Mourad E.H. Ismail, Dennis Stanton**
Muckenhoupt inequality with three measures and applications to Sobolev orthogonal polynomials
E. Colorado, D. Pestana, J. M. Rodriguez, E. Romera

Lévy processes, martingales, reversed martingales and orthogonal polynomials
Paweł J. Szabłowski

Two-step rational extensions of the harmonic oscillator: exceptional orthogonal polynomials and ladder operators
I. Marquette, C. Quesne

http://arxiv.org/abs/1212.4271
Orthogonal polynomials generated by a linear structure relation: Inverse problem
M. Alfaro, A. Peña, J. Petronilho, M. L. Rezola

Contractions of 2D 2nd order quantum superintegrable systems and the Askey scheme for hypergeometric orthogonal polynomials
Ernest G. Kalnins, Willard Miller Jr, Sarah Post

http://arxiv.org/abs/1211.0024
Ramanujan's Master theorem for the hypergeometric Fourier transform on root systems
Gestur Olafsson, Angela Pasquale

On computing some special values of hypergeometric functions
Giovanni Mingari Scarpello, Daniele Ritelli

Gevrey expansions of hypergeometric integrals I
F.J. Castro-Jimenez (1), M. Granger (2) ((1) University of Seville, Spain, (2) University of Angers, France)

A quadratic formula for basic hypergeometric series with application to determinants
Victor J. W. Guo, Jiang Zeng

Belyi functions for hyperbolic hypergeometric-to-Heun transformations
Mark van Hoeij, Raimundas Vidunas
When epsilon-expansion of hypergeometric functions is expressible in terms of multiple polylogarithms: the two-variables examples

Six-dimensional Painlevé systems and their particular solutions in terms of hypergeometric functions
Takao Suzuki

A simplification of Apéry's proof of the irrationality of \( \zeta(3) \)
Krishnan Rajkumar

Pfaffian Systems of A-Hypergeometric Equations
Takayuki Hibi, Kenta Nishiyama, Nobuki Takayama

http://arxiv.org/abs/1211.2430
On the Existence of Telescopers for Mixed Hypergeometric Terms
Shaoshi Chen, Frédéric Chyzak, Ruyong Feng, Guofeng Fu, Ziming Li

http://arxiv.org/abs/1211.1233
Extended q-Dedekind-type Daeehee-Changhee sums associated with Extended q-Euler polynomials
Serkan Araci, Mehmet Acikgoz

Bannai-Ito polynomials and dressing chains
Maxim Derevyagin, Satoshi Tsujimoto, Luc Vinet, Alexei Zhedanov

http://arxiv.org/abs/1211.2461
Bispectrality of the Complementary Bannai-Ito polynomials
Vincent X. Genest, Luc Vinet, Alexei Zhedanov

http://arxiv.org/abs/1211.3186
From Macdonald polynomials to their hyperoctahedral extension: the superspace bridge
O. Blondeau-Fournier, L. Lapointe, P. Mathieu

http://arxiv.org/abs/1211.4062
A New Approach to Multivariate q-Euler polynomials by using Umbral calculus
Serkan Araci, Xiangxing Kong, Mehmet Acikgoz, Erdogan Sen

http://arxiv.org/abs/1211.4881
Some convolution identities and an inverse relation involving partial Bell polynomials
Daniel Birmajer, Juan B. Gil, Michael D. Weiner
http://arxiv.org/abs/1211.4943
The Fourier Transforms of the Chebyshev and Legendre Polynomials
A. S. Fokas, S. A. Smitheman

http://arxiv.org/abs/1211.5745
On a class of two-index real Hermite polynomials
Naima Aït Jedda, Allal Ghanmi

http://arxiv.org/abs/1211.5746
Operational formulae for the complex Hermite polynomials
Allal Ghanmi

http://arxiv.org/abs/1211.6564
Average Characteristic Polynomials of Determinantal Point Processes
Adrien Hardy

http://arxiv.org/abs/1211.6646
Operator orderings and Meixner-Pollaczek polynomials
Genki Shibukawa

http://arxiv.org/abs/1211.0099
Application of a composition of generating functions for obtaining explicit formulas of polynomials
Vladimir Kruchinin, Dmitry Kruchinin

A Recursion Formula for Moments of Derivatives of Random Matrix Polynomials
S. Ali Altug, Sandro Bettin, Ian Petrow, Rishikesh, Ian Whitehead

Asymptotics of Carleman polynomials for level curves of the inverse of a shifted Zhukovsky transformation
Peter Dragnev, Erwin Miña-Díaz, Michael Northington V

The (r1,...,rp)-Bell polynomials
Mohammed Said Maamra, Miloud Mihoubi

Generalizations of Poly-Bernoulli numbers and polynomials
Hassan Jolany, M. R. Darafsheh, R. Eizadi Alikelaye

Bispectral extensions of the Askey-Wilson polynomials
Plamen Iliev

http://arxiv.org/abs/1211.2759
Derivative formulas for Bessel, Struve and Anger-Weber functions
Robert Gaunt
Three-particle integrals with the Bessel functions
Alexei M. Frolov

The Bessel-Plancherel theorem and applications
Raul Gomez

The Humbert-Bessel functions, Stirling numbers and probability distributions in coincidence problems
D. Babusci, G. Dattoli, E. Di Palma, E. N. Petropoulou

The spherical Bessel and Struve functions and operational methods
D. Babusci, G. Dattoli, K. Gorska, K. A. Penson

Matrix-valued Bessel processes
Martin Larsson

Inequalities for modified Bessel functions and their integrals
Robert Gaunt

Log-convexity and log-concavity for series in gamma ratios and applications
S. I. Kalmykov, D. B. Karp

On an integral involving the digamma function
Donal F. Connon

Points rationnels de la fonction Gamma d'Euler
Etienne Besson (IF)

Some applications of the sine and cosine integrals
Donal F. Connon

A Refinement of Ramanujan's Factorial Approximation
Michael D. Hirschhorn, Mark B. Villarino

The 3-state Potts model and Rogers-Ramanujan series
Alex Feingold, Antun Milas
Integers without large prime factors: from Ramanujan to de Bruijn
Pieter Moree

On a generalization of arithmetic functions and the Ramanujan sums
Yusuke Fujisawa

Generalized Rogers Ramanujan Identities from AGT Correspondence
Alexander Belavin, Doron Gepner

Ramanujan, Robin, the Riemann Hypothesis, and Recent Results
Jonathan Sondow

Self-intersections of the Riemann zeta function on the critical line
William Banks, Victor Castillo-Garate, Luigi Fontana, Carlo Morpurgo

A closed-form expression for zeta(2n+1) reveals a self-recursive function
Michael A. Idowu

Any non-monomial polynomial of the Riemann zeta-function has complex zeros off the critical line
Takashi Nakamura, Łukasz Pańkowski

Some applications of the Dirichlet integrals to the summation of series and the evaluation of integrals involving the Riemann zeta function
Donal F. Connon

Polylogarithm approaches to Riemann Zeta function zeroes
Geoffrey B Campbell

Classical-Quantum Correspondence and Functional Relations for Painlevé Equations
A. Zabrodin, A. Zotov

Global Asymptotics of the Second Painlevé Equation in Okamoto's Space
Phil Howes, Nalini Joshi
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:  

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@siam.org) 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
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 20.2 should be sent by March 1, 2013.

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: 
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