Orthogonal Polynomials and Special Functions

SIAM Activity Group on Orthogonal Polynomials and Special Functions

★ ★ ★ ★ **Newsletter** ★ ★ ★ ★

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Contents

From the Editors

As announced in the last issue, this is the first issue co-edited by Wolfram Koepf, Renato Álvarez-Nodarse and Rafael J. Yáñez. The two last-named (R.A.N. and R.J.Y.) would like to apologize in advance for any misprints, errors, etc, caused by their inexperience. They would like to thank Wolfram Koepf for his invaluable help in preparing this edition.

As usual, much of the material was collected from OP-SF NET. You can send items for future issues to any of us.

We hope that you will find in this issue a lot of valuable information and that you will enjoy it as usual.

June 1, 1998

Renato Álvarez-Nodarse
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Wolfram Koepf
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Rafael J. Yáñez
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Call for Nominations for Fall Election of SIAG/OP-SF Officers

SIAM Activity Group on Orthogonal Polynomials and Special Functions will be having its election of officers this year. According to the rules of SIAM such elections take place once every three years. A Nominating Committee has been formed consisting of George Gasper and Martin Muldoon (selected by the SIAM Council), and the

four present elected officers (Charles Dunkl, Tom Koornwinder, Willard Miller and Nico Temme).

Tom Koornwinder, Nico Temme and Willard Miller have decided not to be candidates for the next three-year term. Tom Koornwinder will also end his co-editorship of OP-SF NET. Charles Dunkl (present Chair) may be a candidate for officer, but no longer for Chair.

So we urgently need 7 or 8 candidates for the four elected officer positions (Chair, Vice-Chair, Program Director, and Secretary). It would also be nice (but not absolutely necessary) if one of the officers would be willing to be co-editor of OP-SF NET (jointly with Martin Muldoon).

Nominations may be submitted **not later than June 1** to: Martin E. Muldoon (muldoon@mathstat.yorku.ca) or Tom H. Koornwinder (thk@wins.uva.nl).

Ballots for electing new SIAG/OP-SF officers for a three-year term beginning January 1, 1999 will be mailed in September 1998 to all members.

Tom H. Koornwinder
(thk@wins.uva.nl)

Reports from Meetings and Conferences

1. VIIth International Scientific Krawtchouk Conference: Kiev, Ukraine, May 14-16, 1998

The 7th International Krawtchouk Conference took place in Kiev, Ukraine, from May 14 to May 16, 1998. Below are some titles of the reports related to orthogonal polynomials, special functions and integral transforms.

- M. Khomenko *M. Krawtchouk's background*
- V. Zelenkov *Recent development of M. Krawtchouk's ideas: related articles*
- Yu. Bily *M. Krawtchouk on international mathematical forums*
- M. Babyuk *Integral Hankel type transforms of the 1st kind and spectral parameter in a boundary condition*
- N. Virchenko *About integral equations with generalized Bessel type functions*
- V. Gaidei *New generalization of integral transform of the Bessel type*
- V. Zelenkov, V. Savva *Orthogonal polynomials as a tool to solve differential equations describing multilevel systems dynamics*
- V. Korolyuk *Stochastic Krawtchouk polynomials*
- A. Mazurenko, V. Savva *Discrete variable polynomials: Analog of the Cristoffel formula and its application to solve some differential equations*
- Yu. Mamteev, V. Stukalina, T. Hoochraeva *Features of an algorithm for calculating the modified function by recurrence relations*
- M. Mironenko *Pair adder equation in periodic contact problems*
- A. Mironov *On the integral equations for the Riemann function*
- G. Prizva *Generalization of classical orthogonal polynomials of discrete variable*
- E. Seneta *Characterization of Markov chains by orthogonal polynomial systems*
- S. Tsurpal *Interaction of simple single waves with a structure as Chebyshev-Hermite functions of any index in the materials with microstructure*
- O. Manzyi *Decomposition of the ratio of Happel hypergeometric functions F_3 into the ramified chain fraction*

The 8th Conference is to be held in May 2000.

Vadim Zelenkov
(zelenkov@gray.isir.minsk.by)

Forthcoming Meetings and Conferences

1. Formal Power Series and Algebraic Combinatorics: Toronto, June 15-19, 1998

The 10th international Conference on *Formal Power Series and Algebraic Combinatorics* will take place from June 15-19, 1998 at the *Fields Institute*, Toronto.

Topics: Algebraic and bijective combinatorics and their relations with other parts of mathematics, computer science and physics.

Conference Program: Invited lectures, contributed presentations, poster session, software demonstrations.

Invited Speakers: G. Benkart (USA), P. Cameron (England), P. Dehornoy (France), B. Derrida (France), P. Diaconis (USA), C. Godsil (Canada), K. Ono (USA), J. Y. Thibon (France), B. Sturmfels (USA).

Official languages: English and French.

Program Committee: I. Goulden, Chairman (Canada), N. Bergeron (Canada), S. Billey (USA), F. Brenti (Italy), R. Cori (France), S. Dulucq (France) K. Eriksson (Sweden), O. Foda (Australia), S. Fomin (USA/Russia), I. Gessel (USA), C. Greene (USA), A. Hamel (New Zealand), D. Kim (Korea), C. Krattenthaler (Austria), D. Krob (France), M. Noy (Spain), V. Reiner (USA), C. Reutenauer

(UQAM), F. Sottile (U. Toronto), T. Visentin (U. Winnipeg), M. Wachs (USA), H. Yamada (Japan), G. Ziegler (Germany).

For more information on registration and support, consult the WWW site http://www.math.yorku.ca/bergeron/FPSAC98.html or e-mail bergeron@mathstat.yorku.ca.

Organizing Committee: N. Bergeron, Chairman (York U.), M. Delest (U. de Bordeaux), F. Sottile (U. Toronto), W. Whiteley (York U.).

Nantel Bergeron
(bergeron@mathstat.yorku.ca)

2. q-Series, Combinatorics and Computer Algebra: South Hadley, Massachusetts, USA, June 21-25, 1998.

As one of the *Joint Summer Research Conferences in the Mathematical Sciences*, a Conference on *q-Series, Combinatorics and Computer Algebra* will be held at Mount Holyoke College, South Hadley, Massachusetts, USA, June 21–25, 1998. The co-chairs are Mourad Ismail (ismail@math.usf.edu) and Dennis Stanton (stanton@math.umn.edu).

The topics to be covered will include:

1. classical q-series, number theory and orthogonal polynomials,
2. multivariable polynomials and quantum groups,
3. applications of computer algebra packages to combinatorial problems,
4. applications of q-series to physical problems.

List of speakers: George Andrews, Richard Askey, Pavel Etinghof, Dominique Foata, George Gasper, Ira Gessel, R. William Gosper, Christian Krattenthaler, Tom Koornwinder, Steve Milne, Ken Ono, Doron Zeilberger.

Martin Muldoon
(muldoon@yorku.ca)

3. International Workshop on Orthogonal Polynomials: Numerical and Symbolic Algorithms, Madrid, June 29-July 2, 1998

The main aim of this Workshop is that a relatively small number of invited mathematicians discuss and review recent progress in the Theory of *Orthogonal Polynomials* with special emphasis on numerical applications and symbolic algorithms. The Workshop will take place in the main building of the *Escuela Politécnica Superior*, *Universidad Carlos III de Madrid*, Leganés (Madrid).

The topics to be considered will be:

1. Quadrature formulas
2. Spectral methods in boundary value problems
3. Numerical Linear Algebra
4. Symbolic algorithms and software
5. Combinatorics

The invited speakers are:

- Walter Gautschi (Purdue University, USA), *Orthogonal Polynomials and Quadrature* and *Rational Gauss-type Quadrature Rules*
- Gene Golub (Stanford University, USA), *Bounds for the Entries of Matrix Functions with Applications to Preconditioning*
- Wolfram Koepf (Hochschule für Technik, Wirtschaft und Kultur Leipzig, Germany), *Software for the Algorithmic Work with Orthogonal Polynomials and Special Functions, I* and *II*
- Yvon Maday (Université Pierre et Marie Curie, France), *The Basic Spectral Element and Mortar Elements Methods for Elliptic Problems* and *The Spectral Element Methods for Resolution of the Stokes and Navier-Stokes Problems*
- Marko Petkovšek (University of Ljubljana, Slovenia), *Linear Operators and Compatible Polynomial Bases, I* and *II*
- Doron Zeilberger (Temple University, USA), *The Unreasonable Power of Orthogonal Polynomials in Combinatorics, I* and *II*

Organizing Committee:

- M. Alfaro (Univ. de Zaragoza),
- R. Álvarez-Nodarse (Secretary) (Univ. Carlos III),
- J. Arvesú (Univ. Carlos III),
- F. Marcellán (Chairman) (Univ. Carlos III).

Scientific committee: R. Álvarez-Nodarse, Carlos III University, Sevilla University, Spain; J. S. Dehesa, Granada University, Spain; E. Godoy, University of Vigo, Spain; G. López Lagomasino, Carlos III University, Spain; F. Marcellán, Carlos III University, Spain; R. Yáñez, Granada University, Spain; A. Zarzo, Politechnical University, Madrid, Spain.

For updated information visit the IWOP'98 WWW page http://dulcinea.uc3m.es/users/workshop/iwop98.html. On http://dulcinea.uc3m.es/users/workshop/iwop96.html you will find information about the most recent Workshop on *Orthogonal Polynomials* held in Leganés on June 24-26, 1996.

Renato Álvarez-Nodarse
(nodar@math.uc3m.es)

4. 4th International Conference on Lattice Paths Combinatorics and Applications: Vienna, Austria, July 8-10, 1998

This conference is dedicated to the memory of T.V. Narayana. Topics to be covered by the conference include

- lattice paths and boundaries
- plane partitions
- Young tableaux
- q-calculus
- orthogonal polynomials
- random walk problems
- nonparametric statistical inference
- discrete distributions and urn models
- queueing theory
- analysis of algorithms

Submission of papers: The deadline for submission is already over. The complete versions of the submitted papers to be presented should be received not later than July 10, 1998. After a standard refereeing process papers accepted by the scientific committee will be published in a special issue of the *Journal of Statistical Planning and Inference.*

Location: The conference will take place at the *Institut für Mathematik* of the *Universität Wien.* The first talk is scheduled on July 8, 1998 at 9:00 a.m.

Organizing committee: W. Böhm, University of Economics, Vienna, Austria; Ch. Krattenthaler, University of Vienna, Austria; S.G. Mohanty, McMaster University, Canada; K. Sen, University of Delhi, India.

Scientific committee: N. Balakrishnan, McMaster University, Canada; Ch. Charalambides, University of Athens, Greece; E. Csaki, Hungarian Academy of Science, Hungary; I. Gessel, Brandeis University, U.S.A.; A.W. Kemp, University of St. Andrews, Scotland; C.D. Kemp, University of St. Andrews, Scotland; S.G. Mohanty, McMaster University, Canada; H. Niederhausen, Atlantic University, U.S.A.

Further information: A WWW site http://www.wu-wien.ac.at/wwwu/institute/stat1/lp/lp.html has been set up for the conference which will always contain the latest state of affairs. For any further question, please just write to

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Walter Böhm
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5. SIAM Annual Meeting 1998: Toronto, Canada, July 13-17, 1998

The 1998 Annual Meeting of the *Society for Industrial and Applied Mathematics* will be held at the University of Toronto, Canada, July 13-17, 1998. There is a partially overlapping SIAM Conference on Discrete Mathematics July 12-15 and *Society for Mathematical Biology* (SMB) will be running their annual meeting during the SIAM meeting. In addition the *Mathematical Association of America* (MAA) MathFest will be held, also in Toronto, on July 16-18.

The SIAM meeting will feature several invited talks including one by George Andrews on *The Deconstruction of Calculus Reform* as well as short courses and a rich variety of minisymposia.

Our Activity Group will sponsor a Minisymposium *Problems and Solutions in Special Functions* (Organizers: Willard Miller, Jr. and Martin E. Muldoon) during the SIAM Annual Meeting to be held in Toronto, July 13-17,1998. The meeting's web site is at: http://www.siam.org/meetings/an98/an98home.htm. Here is the description:

"Problem sections in journals such as SIAM Review and the American Mathematical Monthly have been responsible for attracting many young people to the mathematical profession, by providing them with concrete and significant problems they can attack directly. Furthermore, problems sections have traditionally been influential in advancing mathematical research. At this time, when the SIAM Review is phasing out its problem sections, it is appropriate to assess the history and impact of the problems sections and their future evolution."

The Minisymposium has been scheduled for 10:30 a.m. to 12:30 p.m. on Tuesday July 14. We are soliciting brief presentations at the Minisymposium by SIAG-OS members. If you wish to speak, or submit a written statement, contact Miller (miller@ima.umn.edu) to see if time is available.

Confirmed speakers so far are:

Cecil C. Rousseau
University of Memphis

Special Function Problems in the SIREV Problems and Solutions Section—a Retrospective

Abstract: On the basis of his experience as a collaborating editor and then as an editor of the Problems and Solutions section of SIAM Review, the author will give a personal perspective on some problems concerning special functions that have appeared therein. No attempt will be made to give an exhaustive or authoritative review, but instead an eclectic group of problems will be discussed along with personal experiences of the author in working on the Problems and Solutions section for 25 years.

Otto G. Ruehr
Michigan Technological University

Remarks on the SIAM Review Problem Section

Abstract: We will discuss the forty-year history of the Section with particular attention to the second half. An anecdotal description of the trials, tribulations and satisfactions of being editor will be offered. Special attention will be paid to problems in classical analysis, particularly those relating to orthogonal polynomials and special functions.

Willard Miller, Jr.
University of Minnesota

The Value of Problems Sections in Journals

Abstract: The speaker will serve as chair of a session of brief presentations by invited members of the research community that has found problem sections to be of great value. Included will be anecdotes on interesting solved/unsolved problems that have appeared in problems sections; new problems; the future evolution of problems sections.

Information will be maintained at our website (http://www.math.yorku.ca/siamopsf/) and distributed via opsftalk, see p. 12.

Another minisymposium of possible interest to our readers is *Symbolic-Numeric Algorithms for Polynomials* organized by Robert Corless and Stephen H. Watt.

Information on the SIAM meeting is available at http://www.siam.org/meetings/an98/an98home.htm

Willard Miller, Jr.
(miller@ima.umn.edu)

6. International Workshop on Self-Similar Systems: Dubna, Russia, July 30-August 7, 1998

General Information: The *Bogoliubov Laboratory of Theoretical Physics* of the *Joint Institute for Nuclear Research* organizes an International Workshop 'Self-similar systems'. The workshop will be held in Dubna, a small quiet town surrounded by forest on the bank of the Volga river, 120 km north of Moscow. It will start on Thursday morning July 30 and end Friday August 7, 1998.

The Workshop will be devoted to diverse aspects of self-similar systems. The main attention will be paid to mathematically justified theories (the wavelet analysis, solvable models of self-organized criticality, quasicrystals, etc.). There will be a special session (around 5-6 August) devoted to the commemoration of the centenary of Ya. L. Geronimus. This will put a particular emphasis upon orthogonal polynomials (general theory and classical, semiclassical, Laguerre-Hahn polynomials, etc.).

An expected number of participants is 50-60, including a number of people invited by organizers and students. There will be review lectures of 45 min and shorter special seminars for experts. Selection of talks is by the advisory and organizing committees. Due to the interdisciplinary character of the workshop, there will be introductory mini-courses: *Time-frequency Analysis and Wavelets* by B. Torresani, *Wavelets and Multifractals* by S. Jaffard and *Discretizations in Lie Groups* by A. Iserles.

Topics to be covered:

- Wavelets and other self-similar functions
- Self-organized criticality
- Multifractals
- Orthogonal polynomials
- Eigenvalue problems with singular continuous spectra
- Quasicrystals
- Self-structuring phenomena and turbulence
- Difference equations and numerical methods

Advisory Committee: R. Askey (Madison), D. Dhar (Bombay), A. Iserles (Cambridge), S. Jaffard (Paris), V.K. Mel'nikov (Dubna), J. Patera (Montreal), M. Schroeder (Göttingen), A.N. Sharkovsky (Kiev), K. Sneppen (Copenhagen).

Organizing Committee:
V.B. Priezzhev (priezzvb@thsun1.jinr.ru), V.P. Spiridonov (svp@thsun1.jinr.ru), A.L. Baranovski, L.B. Golinskii, E.N. Rusakovich, A.M. Povolotsky (scientific secretary).

Mailing Address:

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141980 Dubna, Moscow region, Russia
Fax: (7-09621) 6-50-84
WWW: http://thsun1.jinr.ru/meetings/

Vyacheslav Spiridonov
(svp@thsun1.jinr.dubna.su)

7. Conference on Combinatorics and Physics'98: Los Alamos, New Mexico, August 10-12, 1998

Conference Theme: Interdisciplinary research at the Los Alamos National Laboratory offers many opportunities for applications of combinatorics to physical problems. The aim of this conference is to highlight applications of combinatorics to physics and to identify further areas of interaction. Any topic that involves combinatorics and its connections or potential applications to any of the following areas of mathematical physics is welcome: symmetry methods, discrete dynamical systems, Kac-Moody algebra, Yang-Baxter equations, statistical mechanics, quasicrystals, supersymmetries, string theory, quantum field

theory, combinatorics of the symmetric group, computer simulation of physical systems, cellular automata and simulation, and related subjects.

The conference will feature several principal lectures. There will also be sessions for contributed papers.

Call for Papers: Selected papers presented at the conference will be published in a special issue of *Annals of Combinatorics*. Abstracts should be submitted by June 15, 1998. Notification of acceptance will be made by July 1, 1998. The collection of accepted abstracts will be given to each participant at check-in.

List of Principal Speakers: George Andrews (Pennsylvania State University), Richard Askey (University of Wisconsin), Paul Ginsparg (Los Alamos National Laboratory), Jay Goldman (University of Minnesota), B. L. Hao (Chinese Academy of Sciences), David Jackson (University of Waterloo), James D. Louck (Los Alamos National Laboratory), Robert V. Moody (University of Alberta), Gian-Carlo Rota (Massachusetts Institute of Technology), Doron Zeilberger (Temple University).

Organizing Committee: Bill Chen (Los Alamos National Laboratory and Nankai University), David M. Jackson (University of Waterloo), James D. Louck (Los Alamos National Laboratory), Gian-Carlo Rota (Massachusetts Institute of Technology) Peter Shiue (University of Nevada, Las Vegas).

Information and Contact: For abstract submission or more detailed information, please contact:

Bill Chen
T-7, Mail Stop B284
Los Alamos National Laboratory
Los Alamos, New Mexico 87545
e-mail: chen@t7.lanl.gov

or

Peter Shiue
Department of Mathematical Sciences
University of Nevada
Las Vegas, NV 89154
phone: +1 702 895-3748; fax: +1 702 895-4343
e-mail: shiue@nevada.edu

For updated information, please look up the web page http://cnls.lanl.gov/ chen/CAP98/

William Chen
(chen@t7.lanl.gov)

8. ICM: Berlin, Germany, August 18-27, 1998

Ian G. Macdonald (Queen Mary and Westfield College, University of London, England) is one of 21 mathematicians invited to give one-hour **Plenary Lectures** at ICM-98, the *International Congress of Mathematicians*, to be held in Berlin, Germany, August 18-27, 1998. This invitation was issued by the Organizing Committee on the recommendation of the Program Committee appointed by the International Mathematical Union (IMU).

The Web page of the International Congress of Mathematicians is http://elib.zib.de/ICM98. This announcement is based on the URL http://elib.zib.de/ICM98/B/2.

9. 42nd Seminaire Lotharingien de Combinatoire: Maratea, Basilicata, Italy, August 31-Sept. 6, 1998

Ten years after the 20th session of the Seminar that took place in Alghero, Sardinia it has been decided to return to Italy, this time to Southern Italy, in Maratea, province of Basilicata, on the Mediterranean sea, some 200 kilometers south of Naples. Ten years ago we could enjoy the fine lectures by I.G. Macdonald on the algebra of the polynomials named after him. This time we want to celebrate **George E. Andrews** on the occasion of his sixtieth birthday.

Dates: From August 31, 1998 (evening) to September 6 (morning). The seminar proper will start on September 1 (morning) to end up on September 5 (evening).

Registration: If you are willing to participate, please register as soon as possible by using the participation form available from the organizers or directly from the web.

Scientific Committee: Jacques Desarmenien (Marnela-Vallée), Dominique Foata (Strasbourg), Adalbert Kerber (Bayreuth), Peter Paule (Linz), Domenico Senato (Potenza), Volker Strehl (Erlangen).

Scientific Programme: The seminar will be run as usual. However a special lecture on George E. Andrews' works will be scheduled, as well as a lecture by himself. Scientific reports from the schools that attend the seminar regularly will be given: Bayreuth, Erlangen, Marnela-Vallée, Strasbourg.

Other communications are welcome, depending on the number of participants who want to give talks. Please, indicate your wishes in the Participation form. The scientific programme will be updated after each proposal and the final one be posted on the web in Mid-August.

For more information and details write to Dominique Foata (email: foata@math.u-strasbg.fr) or Domenico Senato (email: sd049sci@unibas.it).

Tom H. Koornwinder
(thk@wins.uva.nl)

10. Fifth International Conference on Approximation and Optimization in the Caribbean: Guadeloupe, French West Indies, March 29-April 2, 1999

Aim and Scope of the Conference

This conference is the fifth of a series dedicated to research

on Approximation and Optimization in the Caribbean. This series was jointly initiated by Humboldt Universität (Berlin), RWTH (Aachen) and Universidad de la Habana (La Habana). The first two issues were held in Havana in 1987 and 1993. Since then, these meetings are organized every two years in a new country from the Caribbean area: Puebla (Mexico) in 1995, Caracas (Venezuela) in 1997, Pointe à Pitre (Guadeloupe) in 1999. They are supervised by an Executive Committee.

The **goal** of these conferences is to support the development of high level education and research in the Caribbean. They propose tutorials, mini-symposia, invited lectures and contributed talks, on the following topics:

1. *Approximation:* Wavelets, polynomial and rational approximation, splines, orthogonal polynomials, interpolation, asymptotic analysis, radial basis functions. Quadrature formulas
2. *Optimization:* Nonlinear equations and inequalities, continuous and discrete optimization, parametric, stochastic and global optimization, nonsmooth analysis, critical point theory, control theory.
3. *Mathematical Economics:* Fixed point theory, equilibria of competitive economies, financial markets, cooperative and non-cooperative games.
4. *Applications:* Engineering and energy models, robotics, pattern recognition, image restoration, applications in biology, economy and sciences.

Executive Committee: M. Florenzano (Paris), J. Guddat (Berlin), M. A. Jiménez (Puebla), H. Th. Jongen (Aachen), G. López Lagomasino (La Habana).

Organizing Committee: S. Allende (La Habana), U. García Palomares (Caracas), R. Janin (Poitiers), M. Lassonde, A. Moudafi, O. Nakoulima, J. Narayaninsamy (Pointe à Pitre).

Scientific Program:

1. **Tutorials:** *Wavelets Methods for Numerical Simulation* by A. Cohen and Y. Meyer (France), *Convex Analysis and Nonsmooth Optimization* by J. Borwein (Canada).
2. **Invited talks:** A. P. Araujo (Brazil), H. Attouch (France), A. Bensoussan (France), P.-L Butzer (Germany), F. Clarke (France), I. Ekeland (France), C.C. Gonzaga (Brazil), T. Ichiishi (U.S.A.), A. Ioffe (Israel), E. Saff (U.S.A.), S. Smale (Hong-Kong), H. Stahl (Germany), W. Van Assche (Belgium).

General Organization: The Conference will take place in a nice building of the campus of the Antilles-Guyane University located on a hill above the Marina. A Hotel close to the campus will be proposed to the participants. Lunches will be taken on the campus. The lectures will start on Monday (29th March) and finish on Friday (2nd April). The social program of the conference will start on Sunday (28th March) by a Welcome Party. Wednesday afternoon will be devoted to an excursion. A Banquet is also planified.

The conference fee should be between 600 F and 900 F (between 100 US$ and 150 US$), depending on the financial situation, to be paid on arrival. The fee covers lunches, the whole social program, the book of abstracts. If your participation in the Conference is conditional on financial support, please let us know; we hope to be able to provide some partial support. In any case, the organizers will do the best to exempt from the fee at least the participants from the Caribbean area.

Contributions, Submission and Program Committee: Applicants to the tutorials should send a short CV via e-mail to:

appopt5@univ-ag.fr, subject: tutorial

Contributors are invited to submit abstracts in TEX or LATEX via e-mail to:

appopt5@univ-ag.fr, subject: abstract

Participants can also propose a mini-symposium on a specific topic with 4-5 speakers. A proposal for a mini-symposium, stating the theme, the list of speakers and the abstracts, should be sent via e-mail to:

appopt5@univ-ag.fr, subject: mini-symposium

The **deadline** for applications to the tutorials and for submissions of contributions is 30 October 98. Admission in tutorials and acceptance of abstracts or mini-symposia will be notified by 15 December 98.

Research results which are obtained from joint Caribbean projects and which involve young researchers are especially welcomed. We intend to publish the proceedings of the conference in a special volume of the Caribbean Journal of Mathematics and Computing Sciences (CJMCS).

Program Committee Chair: J. Guddat

- *Approximation:* D. Hinrichsen (Germany), D. Lubinsky (South Africa), F. Marcellan (Spain), W. Roemisch (Germany), H. Wallin (Sweden)
- *Optimization:* J.-B. Hiriart-Urruty (France), P. Kall (Switzerland), B.S. Mordukhovich (U.S.A.), J. Stoer (Germany), M. Tapia (U.S.A.)
- *Mathematical Economics:* B. Cornet (France), C. Herrero (Spain), E. Jouini (France), H. Keiding (Denmark), V. Vasilev (Russia)

To get more information please contact:

M. Lassonde,
Département de Mathématiques,

Université des Antilles et de la Guyane,
97159 Pointe à Pitre, Guadeloupe, France.
e-mail: appopt5@univ-ag.fr

For updated information visit the Conference WWW page
http://www.cepremap.cnrs.fr/conferences/appopt5.html

Francisco Marcellán
(pacomarc@ing.uc3m.es)

11. International Workshop on Special Functions: Hong Kong, June 21-25, 1999

An *International Workshop on Special Functions* will take place on June 21-25, 1999 at the *City University of Hong Kong*. The main focus will be on *Asymptotics*, *Harmonic Analysis*, and *Mathematical Physics*. Below you find the preliminary announcement.

Objective: The purpose of the conference is to provide a forum for an exchange of ideas among experts in various topics listed below. It also aims at disseminating information on recent advances made in these areas.

Session Topics: Asymptotics, Classical Special Functions, Combinatorics, Harmonic Analysis and Quantum Groups, Mathematical Physics and PDEs, Orthogonal Polynomials.

Organizing Committee: Charles Dunkl, U. of Virginia, USA; Mourad Ismail, U. of South Florida, USA; Roderick Wong, City U. of Hong Kong.

Call for Papers: Titles and abstracts of contributed papers must be received by January 31, 1999. The abstracts should be preferably typed in LaTeX, not to exceed one page, and sent to the Workshop Secretary (see address below) by e-mail.

Information: Colette Lam, IWSF '99 Workshop Secretary, Department of Mathematics, 83 Tat Chee Avenue, Kowloon, Hong Kong; phone: +852 2788-9816, fax: +852 2788-8561; e-mail: malam@cityu.edu.hk

e-mail: hkconf99@weyl.math.virginia.edu.

Charles F. Dunkl
(cfd5z@virginia.edu)

Books and Journals

Book Announcements

1. Hypergeometric Summation
By Wolfram Koepf
Verlag Vieweg, Braunschweig/Wiesbaden, 1998, 230 pp., DM 69.00, US $ 49.00, distributed in North-America by the AMS, ISBN 3-528-06950-3

In the book *Hypergeometric Summation. An Algorithmic Approach to Summation and Special Function Identities* modern algorithmic techniques for summation, most of which have been introduced within the last decade, are developed and carefully implemented in the computer algebra system Maple.

The algorithms of Gosper, Zeilberger and Petkovšek on hypergeometric summation and recurrence equations and their q-analogues are covered, and similar algorithms on differential equations are considered. An equivalent theory of hyperexponential integration due to Almkvist and Zeilberger completes the book.

The combination of all results considered gives work with orthogonal polynomials and (hypergeometric type) special functions a solid algorithmic foundation. Hence, many examples from this very active field are given.

The present book is designed for use in the framework of a seminar but is also suitable for an advanced lecture course in this area. Many exercises are included.

The software to this book and worksheets with the solution of the exercises can be obtained from http://www.vieweg.de/welcome/downloads/supplements.htm

Contents:

- List of Symbols
- Index

Wolfram Koepf
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2. Special Functions and Differential Equations
By K. Srinivasa Rao, R. Jagannathan, G. Vanden Berghe & J. Van der Jeugt (Eds.)
Allied Publishers, New Delhi, 1998, xiv+486 pp., ISBN 81-7023-764-5

This book is the Proceedings of the Workshop on Special Functions & Differential Equations held at *The Institute of Mathematical Sciences*, Madras, India, January 13-24, 1997, reported in the Newsletter **8** Number 2, page 3 (see also OP-SF NET 4.2, Topic #5)

3. Fractional Order Integral Transforms of Hypergeometric Type
By N. Virchenko and V. Tsarenko
Kiev, 1995, 216 pages, ISBN 5-7702-1101-6, **in Russian**

This book deals with the theory and apparatus of new integral transforms (the fractional G-transforms) with kernels which are transcendental solutions of differential equations of hypergeometric type. Following this is a development and research in the theory of integral operators, integral equations with Gauss hypergeometric function which correspond to different special cases of parameters and variables.

The main titles of the sections are as follows:

Chapter 1. Integral transforms of the fractional order connected to orthogonal polynomials.

1. Some information on the theory of orthogonal polynomials.
2. Integral transforms of the fractional order.
3. Basic fractional operational calculus.
4. Some applications of integral fractional G-calculus.

Chapter 2. Integral transforms connected to the hypergeometric function ${}_2F_1(a,b;c;z)$.

1. Application of classical methods for reception of the inversion formulae.
2. Method of fractional integro-differentiation.

Vadim Zelenkov
(zelenkov@gray.isir.minsk.by)

4. Srinivasa Ramanujan, a Mathematical Genius
By K. Srinivasa Rao
EastWest Books, Madras, 1998, xii+231 pp., ISBN: 81-86852-14-X

Contents:

Tom H. Koornwinder
(thk@wins.uva.nl)

Book Reviews

1. Computation of Special Functions
By S. Zhang and J. Jin
John Wiley & Sons, Inc., New York, 1996. 717 p., price $70.-(hc). ISBN 0-471-11963-6. Disk with software included.

A great number of special functions are considered here: Bernoulli and Euler numbers, orthogonal polynomials, gamma and related functions, Legendre, Bessel, Airy and Struve functions, integrals of Bessel functions, hypergeometric and confluent hypergeometric functions, parabolic cylinder functions, Mathieu functions, spheroidal wave functions, error functions and Fresnel integrals, cosine and sine integrals, elliptic integrals, Jacobian elliptic functions and exponential integrals. There is short chapter with some remarks on methods for computing special functions. There is an appendix containing the formulas for separating the Helmholtz equation in several kinds of coordinate systems, and another appendix on root-finding methods. An general author index is missing; each chapter has a separate list of references.

Each chapter treats a group of functions. In a first section the major properties of the functions are given and some of the important formulas needed for their computation. This information is included to make the book self-contained. Next the algorithms and the software (Fortran-77) for the group of functions are described, and many numerical tables are included. A disk is provided giving over 100 programs for computing the functions. The tables give about 8 significant decimal digits. It is stated that the programs aim at double precision.

I have not tested the software or compared this with other recent publications; see for example the books mentioned below, of which Baker and Moshier give C-programs; Press et al. give several software packages. Thompson's book appears in two versions with a CD-ROM for the software. By choosing Fortran-77 only, the present book does not keep up with modern programming environments.

The authors are well aware of all kind of pitfalls and instabilities that may occur in certain algorithms. In many cases the approach is sound; an error analysis is incidentally given. In some cases just a certain loss of accuracy is accepted without choosing a different, more robust, approach.

The book treats a rather complete selection of special functions. By taking into account so many functions, the authors could not avoid a certain loss of quality in the software. Many high quality approaches in the literature are not mentioned. I cannot see the use of so many tables; some of them are very trivial.

References

[1] L. Baker (1992), C Mathematical function handbook, McGraw-Hill, New York.

[2] S.L. Moshier (1989), Methods and programs for mathematical functions, Ellis Horwood Limited, New York.

[3] W.H. Press, S.A. Teukolsky, W.T. Vetterling and B.P. Flannery (1992), Numerical recipes. The art of scientific computing, Cambridge University Press, second edition.

[4] W.J. Thompson (1997), Atlas for Computing Mathematical Functions: An illustrated guide for practitioners. The book appears in two versions: one with programs in C and Mathematica, and one with programs in Fortran 90 and Mathematica; both editions have a CD-ROM included for software. John Wiley & Sons, New York.

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Journals

1. New Journal: Fractional Calculus & Applied Analysis

Ed. by Virginia Kiryakova

Institute of Mathematics and Informatics, Bulgarian Academy of Sciences

This new journal was already announced in the last Newsletter. The Journal is published by the Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, starting with volume 1 (1998), 4 issues (March, June, September, December). It has two homepages on the web: http://www.diogenes.bg/fcaa and http://alef.math.acad.bg/~fcaa from which more information can be obtained.

Below is a list of the papers appearing in No. 1 and No. 2, Vol. 1 (1998).

- Carleman operators in commutative algebras with logarithms (D. Przeworska-Rolewicz: 1-22)
- Binary exponential functions (Bl. Sendov, P. Marinov: 23-48)
- Some recurrence relations for the generalized hypergeometric functions of the Gauss type (L. Galue, S.L. Kalla: 49-62)
- Scale-invariant solutions of a partial differential equation of fractional order (Yu. Luchko, R. Gorenflo: 63-78)
- Some criteria for univalence of analytic functions involving generalized fractional calculus operators (V. Kiryakova, M. Saigo, H.M. Srivastava: 79-104)
- Multiresolution analysis with sampling subspaces (G.G. Walter, A. Zayed: 109-124)
- The Fourier-Jacobi transform of analytic functions which are (almost) periodic in the imaginary direction (C.A.M. van Berkel, J. de Graaf: 125-134)
- Compositions of Bessel type integral transform with fractional operators on spaces $F_{p,\mu}, F'_{p,\mu}$ (A. Kilbas, B. Bonilla, M. Rivero, J. Rodriguez, J. Trujillo: 135-150)
- On the asymptotics of the Weber-Hermite function in the complex domain (P. Rusev: 151-166)
- Random-walk models for space-fractional diffusion processes (R. Gorenflo, F. Mainardi: 167-191)
- Fractional calculus and wavelet transforms in integral geometry (B. Rubin: 193-219)
- Announcements on international meetings in Summer'1998 and 1999: 105-108, 192, 220
- Contents of "TMSF, Varna'96" (Proc. 2nd Internat. Workshop): 221-224

Virginia Kiryakova
(virginia@bgearn.bitnet)

2. New Journal: Computational Analysis and Applications

Ed. by George A. Anastassiou

A quarterly international publication of PLENUM publishing corporation

Scope of the Journal: The main purpose of *Computational Analysis and Applications* is to publish high quality research articles from all subareas of Computational Mathematical Analysis and its many potential applications and connections to other areas of Mathematical Sciences. Any paper whose approach and proofs are computational, using methods from Mathematical Analysis in the broadest sense is suitable and welcome for consideration in our journal, except for Applied Numerical Analysis articles.The list of possibly connected mathematical areas with this publication includes and is not restricted to: Applied Analysis, Applied Functional Analysis, Approximation Theory,

Asymptotic Analysis, Difference Equations, Differential Equations, Partial Differential Equations, Fourier Analysis, Fractals, Fuzzy Sets, Harmonic Analysis, Inequalities, Integral Equations, Measure Theory, Moment Theory, Neural Networks, Numerical Functional Analysis, Potential Theory, Probability Theory, Real and Complex Analysis, Signal Analysis, Special Functions, Splines, Stochastic Analysis, Stochastic Processes, Summability, Tomography, Wavelets, any combination of the above, etc.

Working Analytically and Computationally in Mathematical Sciences has become a main trend in the last years, as well as mixing different branches, so we can understand better and deeper the important and complex problems of our real and scientific world. *Computational Analysis and Applications* will be a peer-reviewed Journal.

We are calling for papers for possible publication. The contributor should send four copies of the contribution to the Editor-in-Chief typed in TEX, LATEX double space.

George Anastassiou
(anastasg@msci.memphis.edu)

Problems and Solutions

Thus far 19 problems have been submitted seven of which had been solved in previous issues (#**1**, **2**, **4**, **6**, **7**, **10**, **14**) and one of which is new (#**19**). Still unsolved are Problems #**3**, **5**, **8**, **9**, **11**, **12**, **13**, **15**, **17** and **18**. This time no solution has been submitted.

18. Maclaurin Expansion. For $a, b \in (0,1)$ let

$$Q(a,b,r) = \frac{B(a,b)}{\log\left(\frac{c}{1-r}\right)}\, {}_2F_1\left(\begin{matrix} a, b \\ a+b \end{matrix} \middle| r \right)$$

where $B(a,b)$ denotes the Beta function, and

$$c = e^{R(a,b)}\,, \quad R(a,b) = -\Psi(a) - \Psi(b) - 2\gamma\,,$$

γ is Euler's constant, and

$$\Psi(z) = \frac{\Gamma'(z)}{\Gamma(z)}\,.$$

Let

$$G(a,b,r) = \frac{Q(a,b,r)-1}{1-r} = \sum_{j=0}^{\infty} d_j\, r^j\,.$$

Is it true that all $d_j > 0$?

This question arose in connection with Theorem 1.4 in Trans. Amer. Math. Soc. 347 (1995), 1713–1723, which is a refinement of Ramanujan's asymptotic formula for the zero-balanced hypergeometric function ${}_2F_1$.
(Submitted on March 24, 1997)

Matti Vuorinen
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19. Uniform Bounds for Shifted Jacobi Multiplier Sequences. For Fourier series the following is immediate: Suppose the real or complex sequence $\{m_k\}$ generates a bounded operator on $L^p(\mathbf{T})$, $1 \le p \le \infty$, i.e., for polynomial f

$$\Big\| \sum m_k \hat{f}_k e^{ik\varphi} \Big\|_{L^p(\mathbf{T})} \le \|m\|_{M^p(\mathbf{T})} \Big\| \sum \hat{f}_k e^{ik\varphi} \Big\|_{L^p(\mathbf{T})}\,,$$

then one has for the shifted sequence $\{m_{k+j}\}_{k\in\mathbf{Z}}$ that

$$\sup_{j\in\mathbf{N}_0} \|\{m_{k+j}\}\|_{M^p(\mathbf{T})} \le C\, \|m\|_{M^p(\mathbf{T})}\,,\ 1 \le p \le \infty\,. \quad (1)$$

Looking at cosine expansions on $L^p(0,\pi)$ one easily derives the analog of (1) via the addition formula

$$\cos(k \pm j)\theta = \cos k\theta \cos j\theta \mp \sin k\theta \sin j\theta$$

provided the periodic Hilbert transform is bounded, i.e., for $1 < p < \infty$. More generally, by Muckenhoupt's transplantation theorem [2, Theorem 1.6],

$$\Big(\int_0^\pi \Big| \sum m_{k+j}\, a_k\, P_k^{(\alpha,\beta)}(\cos\theta) \Big|^p \sin^{2\alpha+1}\frac{\theta}{2} \cos^{2\beta+1}\frac{\theta}{2}\, d\theta \Big)^{1/p}$$

$$\equiv \Big(\int_0^\pi \Big| \sum m_{k+j}\, b_k\ \phi_k^{(\alpha,\beta)}(\cos\theta) \Big|^p w_{\alpha,\beta,p}(\theta)\, d\theta \Big)^{1/p}$$

$$\approx \Big(\int_0^\pi \Big| \sum m_{k+j}\, b_k\, \cos k\theta \Big|^p w_{\alpha,\beta,p}(\theta)\, d\theta \Big)^{1/p},$$

where $P_k^{(\alpha,\beta)}$ are the Jacobi polynomials, $\phi_k^{(\alpha,\beta)}(\cos\theta)$ are the orthonormalized Jacobi functions with respect to $d\theta$, and

$$w_{\alpha,\beta,p}(\theta) = \sin^{(2-p)(\alpha+1/2)}\frac{\theta}{2} \cos^{(2-p)(\beta+1/2)}\frac{\theta}{2}\,.$$

Therefore, the above argument for cosine expansions also applies to Jacobi expansions provided the periodic Hilbert

transform is bounded with respect to the weight function $w_{\alpha,\beta,p}$; hence, the analog of (1) holds for Jacobi expansions when

$$\frac{2\alpha+2}{\alpha+3/2} < p < \frac{2\alpha+2}{\alpha+1/2}\,, \qquad \alpha \geq \beta \geq -\frac{1}{2}\,.$$

(i) Can the above p-range be extended? By Muckenhoupt [2, (1.3)], a fixed shift is bounded for all p, $1 < p < \infty$.

(ii) Consider the corresponding problem for Laguerre expansions (for the appropriate setting see [1]); a fixed shift is easily seen to be bounded for all $p \geq 1$.

Both questions are of course trivial for $p = 2$ since $\ell^\infty = M^2$ by Parseval's formula.

References

[1] Gasper, G. and W. Trebels: On necessary multiplier conditions for Laguerre expansions, Canad. J. Math. 43 (1991), 1228 – 1242.

[2] Muckenhoupt, B.: Transplantation Theorems and Multiplier Theorems for Jacobi Series, Memoirs Amer. Math. Soc., Vol. 64, No. 356, Providence, R.I., 1986.

(Submitted on May 19, 1998)

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Miscellaneous

1. SIAM News Article on Handbooks

The March 1998 issue of SIAM News has an article by Barry A. Cipra entitled *A new testament for special functions?* It is inspired by the minisymposium *Handbooks for Special Functions and the World Wide Web* which was held at the SIAM 45th Anniversary Meeting last year. I think the article does a good job. It is also on the web at

http://www.siam.org/siamnews/03-98/function.htm

The article has one news item which was not mentioned earlier in the Newsletter:

Mourad Ismail (University of South Florida) and Walter van Assche at the Katholieke Universiteit Leuven in Belgium are heading an international effort to bring the Bateman Project up to date. Ismail envisions the production of seven or eight volumes over the next decade. He and Richard Askey (University of Wisconsin), along with Roelof Koekoek at the Delft University of Technology and René Swarttouw at the Free University of Amsterdam, are working on the first volume, on orthogonal polynomials. (Information can be found on the Web, at http://aw.twi.tudelft.nl/~koekoek/). Work is also under way on a second volume, on special functions in number theory and combinatorics.

Tom H. Koornwinder
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2. The Listserv opsftalk Needs More Postings

The listserv `opsftalk` is a discussion forum in orthogonal polynomials and special functions. It started last November. Presently, there are 32 subscribers, but the number of postings is low. A little more animation, and not just by one or two persons, would be welcome. I am sure there are potentially plenty of meaningful topics for postings.

To subscribe, send a message to

majordomo@wins.uva.nl

and put in the body of the message only the words:

`subscribe opsftalk`

You can post messages by sending mail to

opsftalk@wins.uva.nl

Your message will then be automatically forwarded to everybody on the opsftalk list.

The postings received during January 13 - March 12, 1998 were archived by Tom Koornwinder at URL

http://turing.wins.uva.nl/~thk/opsftalk/archive.html.

Postings received from March 14, 1998 onwards will be automatically archived at URL

http://www.findmail.com/listsaver/opsftalk/

Please note that e-mail addresses in the messages posted at findmail look incomplete, but become complete when you click on them.

Tom H. Koornwinder
(thk@wins.uva.nl)

3. SIAM Journal Alerting Service

SIAM is pleased to announce an alerting service to let our readers know when new papers are posted electronically as part of SIAM Journals Online (http://epubs.siam.org/).

SIAM has switched to a paper-by-paper publication process. This means that when a paper has completed the production process, it is immediately posted electronically to SIAM Journals Online and can be viewed by subscribers. Under the old production process, entire issues were posted approximately four weeks prior to the mail date of the bound journal. Because there is now no set schedule for when the papers will be published electronically, it will be difficult for our readers to determine which papers are new. Our Journal Alerting Service will allow you to keep informed about newly posted papers that may be of interest to you. Even if you do not currently subscribe to a SIAM journal, the alerting service may be of value to you in keeping abreast of what is being published.

If you decide to sign up for this service, you will receive an e-mail that lists journal, issue, title, authors, and URL for all papers posted to SIAM Journals Online. To limit the size and frequency of these e-mail messages, they will be sent no more than once a week. Please note that this is not a discussion list. You will receive only the weekly updates listing the new article postings.

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Please include (13364) along with your electronic mail address when you subscribe to this service. Doing so will facilitate the processing of your subscription request. Subscribing by electronic mail will be open only until December 31, 1998. After that date, please visit our web page at http://epubs.siam.org/.

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If you have any questions about the Journal Alerting Service, please contact Laura Helfrich, SIAM's Online Services Manager, at helfrich@siam.org.

Laura Helfrich
(helfrich@siam.org)

4. W.T. and Idalia Reid Prize Winner

SIAM will present the 1998 W.T. and Idalia Reid Prize to Jacques-Louis Lions of *College de France* for his seminal contributions to the areas of partial differential equations, distributed parameter control and variational theory.

The award will be presented on Thursday, July 16, at the SIAM Annual Meeting in Toronto.

Allison Bogardo
(bogardo@siam.org)

5. Polya and DiPrima Prize Winners Announced

SIAM will award its 1998 George Polya Prize jointly to Professors Percy Deift (Courant Institute of Mathematical Sciences), Peter Sarnak (Princeton University), and Xin Zhou (Duke University).

Deift and Zhou are recognized for their work on Riemann-Hilbert problems; Sarnak, for his work on the discrete spectrum of the Laplacian on curves.

The awards will be presented on Thursday, July 16, at the SIAM Annual Meeting, which will take place at the University of Toronto the week of July 13-17.

SIAM will award its 1998 Richard C. DiPrima Prize to Bart De Schutter of Katholieke Universiteit in Leuven, Belgium.

De Schutter is awarded the prize for his thesis on *Max-Algebraic System Theory for Discrete Event Systems.*

The award will be presented on Thursday, July 16, at the SIAM Annual Meeting in Toronto.

Allison Bogardo
(bogardo@siam.org)

6. Electronic Preprint Archives:
Haubold's archive and the xxx archives

Some six years ago the late Waleed Al-Salam in Edmonton founded an electronic preprint archive on Orthogonal Polynomials and Special Functions. This was continued by Hans Haubold in Vienna. Initially, the archive could only be approached by anonymous ftp. Later, downloading by ftp became integrated in web browsers. Approaching the archive via the web was further facilitated when Hans Haubold built a web front end for his archive. Formally, this archive is not an activity of the SIAM Activity Group on Orthogonal Polynomials and Special Functions (SIAG OP-SF), and the manager of the archive is completely autonomous. In practice, the Activity Group has always supported the archive by announcing new submissions in OP-SF NET, and by giving advice to the manager of the archive.

Initially, many preprints were submitted to the archive. Between 1 August 1995 and 23 May 1998, 55 entries were submitted to the opsf-ftpsite. At present the archive has 153 listings of full papers. However, the number of entries per year is declining, and comprises only a small part of all preprints being produced in the field of Orthogonal Polynomials and Special Functions. One possible reason for this decline is that many researchers now have the possibility to make their preprints available on the web via their home page. Because of this, the possiblity has been created to post just an abstract of a preprint at Haubold's archive, while giving a link to where the actual paper resides on the Internet. This facility has been used for only 7 abstracts until now.

P. Ginsparg, a phycisist in Los Alamos, started an electronic preprint archive on high energy physics in 1991. This has been an enormous success, and it branched into many subdivisions. All important papers in the field are posted in these so-called xxx archives. There is a standard interface, and handling is completely automatic. Some branches of mathematics have imitated this model successfully, notably Algebraic Geometry (abbreviated AG, 1379 listings) and Quantum Algebra (abbreviated QA, 1315 listings). Recently, many new archives for subfields of mathematics have been started as part of these xxx archives. Together they should cover all of mathematics. All archives share the uniform interface, the automatic handling and, very important, the possibility of cross-linking.

Our field of Orthogonal Polynomials and Special Functions is primarily covered by the archive Classical Analysis (CA). Its keywords are: Harmonic analysis, approximations, series, expansions, asymptotics, classical transforms, special functions, integro-differential equations, differential relations, analysis of ODE's, calculus of variations. Several other archives also receive some submissions in the area of OP & SF (which may be cross-linked to CA). In particular Quantum Algebra (QA) and Combinatorics (CO) get some submissions related to our area. At present, CO has 59 listings and CA has 10 listings.

The SIAG OP-SF has always supported Al-Salam's and Haubold's preprint archive for mainly two reasons:

- it is a useful facility for researchers in our field to make their preprints more widely available;
- recent contributions to our field become easily and quickly visible and accessible by the archive.

As already written above, the first argument is becoming less important because of technical developments (but still plays a role for some working outside the western world). The second argument is still important, but it depends on the willingness of the majority of researchers in the field to submit their papers

or abstracts to the archive.

How things will develop in future, can be influenced only very little by the SIAG OP-SF. The success of a preprint archive is primarily determined by whether a critical number of leading researchers in the field decides to post their preprints to the archive (which has been the case for Algebraic Geometry and for Quantum Algebra).

Our Activity Group is negotiating with the managers of the xxx archives about the incorporation of Haubold's archive in the CA category of xxx. The idea is that the identity of Haubold's present archive should be preserved as much as possible within xxx, for instance by sharpening the profile of CA and by copying the files in Haubold's archive to xxx. Serial numbers will be assigned to incorporate the month and year of the original submission. We suggest authors in the field of OP & SF to submit their preprints to the category Classical Analysis (CA) of the xxx archives (with possible cross-linking to one or more other categories) but, in addition, to announce their preprint in Haubold's archive by sending him an abstract together with a link.

Here are some of the relevant addresses and URL's:

Haubold's archive:
ftp://unvie6.un.or.at/siam/opsf_new/00index.html

the ftp address for submissions to Haubold's archive:
unvie6.un.or.at, directory siam/submissions

the xxx mathematics archive, maintained at Los Alamos:
http://xxx.lanl.gov/archive/math

the UC Davis front end for the xxx mathematics archive:
http://front.math.ucdavis.edu/

a detailed list of categories within the xxx mathematics archive:
http://front.math.ucdavis.edu/categories.html

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7. Graduate Student Research Position Starting Fall 1998

Position: one graduate or PhD student to work with Dr. Sergei K. Suslov.

Duration: 3 years

Project: Basic Fourier Series and Their Extensions

Program: NSF Analysis Program

Abstract:
The study of Fourier series has a long and distinguished history in mathematics. Historically, Fourier series were introduced in order to solve the heat equation, and since then these series have been frequently used in various applied problems. Much of modern real analysis including Lebesgue's fundamental theory of integration had its origin in some deep convergence questions in Fourier series. There is a great deal of interest these days in basic (or q-)extensions of Fourier series and their theory. In this project we intend to lay a sound foundation for this study. We introduce basic Fourier series, investigate their main properties, and consider some applications in mathematical physics. For more info see Dr. Suslov's webpage http://www.public.asu.edu/~sergei/

Requirements:
Experience in any area of classical analysis, approximation theory, or orthogonal polynomials and q-special functions is essential. Some experience in any area of computational mathematics is also necessary.

The main campus of *Arizona State University* has approximately 43,000 students and is located in the rapidly growing metropolitan Phoenix area, which provides a wide variety of recreational and cultural opportunities.

The *Department of Mathematics* currently has 58 full time faculty members, 27 Lecturers and over 70 supported Graduate Students. Departmental computing facilities include networked clusters of high-end workstations as well as several graphics computers and access to the University's central computing facilities.

Applicants must send their resume, a letter of intent and three letters of recommendation to be sent by to:

Dr. Sergei K. Suslov
Department of Mathematics
PO Box 871804
Arizona State University
Tempe, AZ 85287-1804

Review of the applications will begin immediately and will continue until the position is filled.

Sergei K. Suslov
(suslov@math.la.asu.edu)

8. For Sale

For several reasons, such as my recent retirement, I want to sell my back volumes of SIAM J. Appl. Math. and SIAM J. Math. Analysis.

SIAM Journal on Applied Mathematics, Vol. 15 (1967) - Vol. 57 (1997), 52 bound volumes;
SIAM Journal on Mathematical Analysis, Vol. 1 (1970) - Vol. 28 (1997), 38 bound volumes.

John Boersma
(boersma@win.tue.nl)

How to Contribute to the Newsletter

Send your Newsletter contributions directly to one of the Co-editors:

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preferably by e-mail, and in LaTeX format. Other formats are also acceptable and can be submitted by e-mail, regular mail or fax.

Note Renato's new address which will be valid beginning with October 1998

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Deadline for submissions to be included in the October issue 1998 is September 15, 1998.

Back issues of the Newsletter can be obtained from http://www.zib.de/koepf/siam.html .

The Activity Group also sponsors an electronic news net, called the **OP-SF Net**, which is transmitted periodically by SIAM. The Net provides a rather fast turnaround compared to the Newsletter. To *receive* transmissions, just send your name and e-mail address to poly-request@siam.org (as with other nets, nonmembers can also receive the transmissions). Your OP-SF Net *contributions* should be sent to poly@siam.org. Please note that submissions to OP-SF Net are automatically considered for publication in the Newsletter, and vice versa, unless the writer requests otherwise.

The Net is organized by Tom Koornwinder (thk@wins.uva.nl) and Martin Muldoon (muldoon@yorku.ca). Back issues of OP-SF Net can be obtained by anonymous ftp from `ftp.wins.uva.nl`, in the directory

pub/mathematics/reports/Analysis/koornwinder/opsfnet.dir

or by WWW at the addresses

http://turing.wins.uva.nl/~thk/opsfnet/

http://www.math.ohio-state.edu/JAT

Martin Muldoon, moreover, manages our home page

http://www.math.yorku.ca/siamopsf/

on World Wide Web. Here you will find also a WWW version of the OP-SF Net. It currently covers the topics

- Conference Calendar
- Books, Conference Proceedings, etc.
- Compendia, tools, etc.
- Compiled booklist on OP-SF
- Meeting Reports
- Projects
- Problems
- Personal, Obituaries, etc.
- History
- Positions available
- Miscellaneous
- Memberlist
- Links to WWW pages of interest to members

Activity Group: Addresses

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 now have around 140 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 http://www.math.yorku.ca/siamopsf/ is managed by Martin Muldoon (muldoon@yorku.ca).

The **Newsletter** is a publication of the *SIAM Activity Group on Orthogonal Polynomials and Special Functions*, published three times a year. To receive the Newsletter, you must first be a member of SIAM so that you can join the Activity Group. The annual dues are $96 for SIAM plus $10 for the Group; students pay $20/year with free membership in one activity group; postgraduates can become members of SIAM for $45/year. To join, contact:

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