Orthogonal Polynomials and Special Functions

SIAM Activity Group on Orthogonal Polynomials and Special Functions

★ ★ ★ ★ **Newsletter** ★ ★ ★ ★

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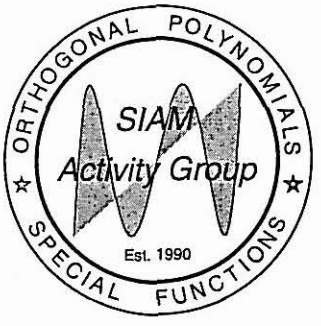

From the Editors

This is the first issue for the 2002 year and we start with new elected officers:

Chair: Dan Lozier
Vice Chair: Walter Van Assche
Program Director: Paco Marcellán
Secretary: Peter Clarkson

We congratulate all of them and hope to continuing the fruitful collaboration started a long time ago. We also want to join the OP-SF editor Martin Muldoon in thanking Charles Dunkl for his activities as an officer since the activity group's creation, first as Chair, later as Secretary. Many thanks Charles and we hope that you will continue supporting the group and we hope that you will find a place in the *Communications Committee* that our group will organize in the near future. In this connection please see the first item in the Letter from the Chair

As usual, we thank all the contributors to the present issue and hope hope you enjoy the Newsletter and find interesting and useful information.

February 15, 2002

Renato Álvarez-Nodarse
(ran@us.es)

Rafael J. Yáñez
(ryanez@ugr.es)

Letter from the Chair

Over the next 3 years the newly elected leadership of the activity group will be working hard

to bring you the kinds of programs and services that we hope you will find interesting and useful. Below I will describe three developments that are in various stages of planning.

1. Communications Committee. The idea of forming this committee arose at an OPSF activity group meeting that was held during the Rome OPSFA conference in June 2001. Our printed and electronic newsletters, and our Web site, do a good job of disseminating information about orthogonal polynomials and special functions. The four people who provide this service are named at the end of every newsletter: Renato Alvarez-Nodarse, Rafael Yáñez, Martin Muldoon, and Bonita Saunders. Each has explicit responsibility to use a particular communications channel to present essentially the same information. But the responsibility to gather this information is implicit. The new Communications Committee will be responsible as a team both to gather information and to disseminate it. The committee will determine its own internal structure and division of work among its members. Martin Muldoon has agreed to coordinate the development of the committee. Some OPSF members have already offered to serve on the committee, and others may be asked to serve. If you are interested in this opportunity, please contact Martin directly.

2. Szego Prize. SIAM has a number of prizes in various areas of applied mathematics that are named after prominent researchers. The idea of working with SIAM to establish a prize for research in OPSF has been discussed among the activity group officers from time to time, most recently at the activity group meeting in June 2001. The name Szego Prize was introduced at that meeting. Subsequently I talked with SIAM executive director Jim Crowley and SIAM technical director Bill Kolata. They support the idea, provided the financial arrangements can be worked out. Each SIAM prize has what I will call an endowment, for lack of a better term, from which the earnings provide cash to cover most of the expenses associated with the prize. SIAM manages prize endowments as part of its regular investment program. A big task for us, in addition to establishing the terms of the prize, will be to establish the endowment. I hope that we will be able to push forward with this idea, and I will make sure you are informed as progress is made.

3. SSFA Conference in India. Our activity group has a sister society in India, the Society for Special Functions and Applications. It was formed, using our SIAM charter as a model, after a successful conference in 1997 in which some of our members were participants. Another conference is being planned for September 23 - 27, 2002, to be preceded by a week-long workshop on computer algebra and the software packages Hyp and Hyp-q. Some of our members are on the advisory committee and the tentative list of speakers. There was hope that a funding contribution of $5000 might come from the U.S. SIAM identified a possible NSF program and offered to prepare the application, with technical input from us, but further investigation made it clear that the application would not be successful. I hope the conference will take place as planned even without U.S. support. Watch the Forthcoming Meetings and Conferences section of the newsletter for further announcements.

Let me close by welcoming new officer Peter Clarkson and returning officers Walter Van Assche and Paco Marcellan. I also wish to thank Peter McCoy and Charles Dunkl for running for the offices of Secretary and Vice Chair, respectively. As founder, first Chair, and outgoing Secretary, Charles deserves extra thanks from all of us. I am happy to report that he is continuing his active participation in activity group affairs.

Dan Lozier Chair, OPSF Activity Group

Daniel Lozier
(lozier@cam.nist.gov)

Reports from Meetings and Conferences

1. International Conference on "NUMERICAL ALGORITHMS" dedicated to Claude Brezinski on the occasion of his 60th birthday. Marrakesh (Morocco), October 1-5, 2001

The International Conference on Numerical Algorithms dedicated to Claude Brezinski on the occasion of his 60th birthday took place in Marrakesh, Morocco, October 1-5,

SIAM Activity Group
on
Orthogonal Polynomials and Special Functions
http://math.nist.gov/opsf

△

Elected Officers

DANIEL W. LOZIER, *Chair*
WALTER VAN ASSCHE, *Vice Chair*
FRANCISCO MARCELLÁN, *Program Director*
PETER CLARKSON, *Secretary*

Appointed Officers

RENATO ÁLVAREZ-NODARSE, *Co-Editor of the Newsletter*
RAFAEL J. YÁÑEZ, *Co-Editor of the Newsletter*
MARTIN E. MULDOON, *Editor of the OP-SF Net*
BONITA SAUNDERS, *Webmaster*

△

THE PURPOSE *of the Activity Group is*

—to promote basic research in orthogonal polynomials and special functions; to further the application of this subject in other parts of mathematics, and in science and industry; and to encourage and support the exchange of information, ideas, and techniques between workers in this field, and other mathematicians and scientists.

2001. The conference was attended by approximately 170 participants from 4 continents, and was characterized by a warm and friendly atmosphere. The week-long meeting featured a wealth of high quality talks on many diverse topics, from Pade' and rational approximation, orthogonal polynomials, extrapolation methods, quadrature, the solution of large linear or nonlinear systems of equations, inverse problems and optimization, reflecting the multifaceted nature of Claude Brezinski's research interests and scientific contributions. During his successful and productive career, Claude Brezinski (co)authored eleven books, over 160 research papers, started three scientific journals and served as a model and an inspirator for a large number of students and colleagues. Many of Claude's students, it was pointed out at the opening of the conference by the rector of the University of Marrakesh, are from Morocco, and Claude's work with these students and continued mentoring has been greatly beneficial to the growth of numerical analysis in Morocco.

In addition to attending the lectures, the participants also had several opportunities to experience the magic charm of Morocco thanks to a full social program, which included mint tea in a palm orchard, dinner at an outdoor restaurant with a traditional Moroccan show, an excursion to Essaouira on the Atlantic coast, and a conference banquet complete with two belly dancers and reminiscences by Peter Graves-Morris on the topic "My Conferences with Claude."

Claude's high level of energy and vitality permeated the whole conference and was quite contagious. At the conference banquet he gave a presentation, complete with slides, on "What Really Happens at Conferences - and Never Gets Reported in the NA-Digest." Needless to say, details of Claude's talk cannot be revealed here.

The organizing committee, which included

B. Beckermann, A. Bentbib, B. Germain-Bonne, J.-P. Chehab, M. El Alaoui-Talibi, A. Lembarki, M. Prevost, A. Matos, A. Messaoudi, M. Redivo Zaglia, R. Sadaka, H. Sadok, and J. Van Iseghem

did an excellent job and the conference ran extremely smoothly in spite of the many disruptions caused by the September 11 events. The members of committee were very helpful also with practical algorithms, like offering advice on what to eat and drink, how to negotiate a taxi fare and where and how to buy local crafts.

Congratulations, Claude! You've got your transit papers.

Daniela Calvetti
(dxc57@po.cwru.edu)
Lothar Reichel
(reichel@mcs.kent.edu)

Forthcoming Meetings and Conferences

1. International Conference of the Society of Special Functions and their Applications. Varanasi (India) March 4-6, 2002.

The next International Conference of the Society of Special Functions and their Applications is scheduled to be held at Varanasi (India) from March 4-6, 2002. The organizers of the conference have great pleasure in extending an invitation to those interested to participate in this conference and calls for papers for presentation. National and international funding agencies are being approached for sponsorship and it is hoped that all participants will be provided local hospitality for the duration of the Conference which will include invited talks by experts and paper presentation/poster sessions. You are requested to kindly send an abstract of your paper (not exceeding 500 words) on or before January 30, 2002 either by mail, email or fax to the General Secretary of the Society, Prof. M.A. Pathan.

Organizing Committee: Prof. R. P. Agarwal, Prof. N.

K. Thakare, Prof. H. L. Manocha, Prof. S. Bhargawa, Prof. R. S. Pathak (Convenor & Local Organizing Secretary), Prof. Arun Verma, Prof. M. A. Pathan, Prof. R. Y. Denis, Prof. K. Srinivasa Rao, Prof. A. K. Agrawal, Prof. C. K. Sharma, Dr. P. K. Banerji, Dr. S. N. Singh, Dr. M. Azhar Husain, and Dr. S. Ahmad Ali

The following are the registration charges for participation in the conference:

Delegate fee (Indian): Rs 400/– (for life members), Rs 500/- (for sessional members), Student participants fee: Rs 300/– (for life members), Rs 400/- (for sessional members), Foreign participants: $100.

The registration charges may be paid through a Bank Draft in favour of "SSFA Conference 2002" payable at Varanasi. Please confirm your participation at your earliest to the Local Organizing Secretary:

Prof. R. S. Pathak
Department of Mathematics Banaras Hindu University
Phones (Off.): +91-542-310291 Ext: 334 (Res.): +91-542-275662
Varanasi 221 005, India

Any other information required by the participants may be addressed to the Local Organizing Secretary.

Prof. M. A. Pathan
General Secretary of SSFA & Chairman
Department of Mathematics
Aligarh Muslim University
Aligarh 201 022, India
Phones (Off.): +91-571-701019, (Res.): +91-571-701282
Fax: +91-571-704229
E-mail: mapathan@postmark.net

M. A. Pathan
(mapathan@postmark.net)

2. Operator Theory and its Applications in Mathematical Physics. Bedlewo (Poland), May 11–18, 2002.

There will be an international conference on "Operator Theory and its Applications in Mathematical Physics" in Bedlewo (near Poznan) in Poland, from May 11 to May 18, 2002. The topics of the conference are collected in three sections:

1. Singular perturbation in operator theory (organizers: W. Karwowski and P. Kurasov)
2. Random and quasiperiodic Schrödinger operators (organizers: P. Stollmann and G. Stolz)
3. Spectral analysis of Jacobi matrices: discrete models in quantum optics (organizers: W. Van Assche, J. Janas, S. Naboko)

I would like to encourage people to participate, in particular to section 3. Plenary speakers include J.S. Geronimo (Georgia Institute of Technology, Atlanta), Gerard Teschl (University of Vienna), Thomas Kriecherbauer (Ludwig-Maximilians University, Munchen) and various others. The fee is $300 (before February 15, 2002) and covers lodging, food, banquet and conference material. Details can be found at

http://www.impan.gov.pl/BC/020perTh.html

Walter Van Assche
(walter@wis.kuleuven.ac.be)

3. The 9th International Scientific Krawtchouk (Kravchuk) Conference. National Technical University of Ukraine (KPI, Kiev), May 16-18, 2002

The 9th International Scientific Krawtchouk (Kravchuk) Conference will take place on May 16-18, 2002 in National Technical University of Ukraine (KPI, Kiev)

Sections: Differential and Integral Equations, their Applications. Algebra, Geometry. Mathematical and Numerical Analysis. Probability Theory and Mathematical Statistics. History and Technique of Mathematical Teaching.

Interested people are invited to submit a one-page abstract by March 1, 2002 to:

Prof. Nina Virchenko,
M. Kravchuk Conference
Phys.-Math. Faculty,
National Technical University of Ukraine (KPI)
37, Peremogy Prospect, corpus # 7, room # 437
Kyiv 03056, Ukraine
Phone: +380 44 4411441
Email: kr_conference@yahoo.com

See details at Krawtchouk Polynomials Home Page:

http://zelenkov.isir.minsk.by/orthpol/ or
http://www.geocities.com/orthpol/

Vadim Zelenkov
(kr_conference@yahoo.com)

4. Symmetries and Integrability of Difference Equations. EuroConference on Discrete Painlevé Equations and the Solvability of Difference Equations. Giens, France, June 21-26, 2002

The next conference on "Symmetries and Integrability of Difference Equations" (SIDE V) will be a Euresco Conference. The topics covered by this conference are

- analytic and algebraic aspects of difference equations
- difference Galois theory
- the Painlevé property and singularity analysis

- growth and branching phenomena in rational mappings
- difference analogues of the Painlevé equations
- isomonodromic deformation theory
- asymptotics of orthogonal polynomials
- symmetries of difference equations
- applications to numerical analysis

The conference will take place in Giens (near Toulon) in France, from June 21 to June 26, 2002. Grants are available for young scientists from the European Community and its associated states and some INTAS support is available for young scientists from the New Independent States of the former Soviet Union. Speakers will include Mark Ablowitz, Claude Brezinski, Peter Clarkson, Robert Conte, Rod Halburn, Peter Hydon, Gertruida Immink, Arieh Iserles, Alexander Its, Nalini Joshi, Martin Kruskal, Ilpo Laine, Decio Levi, Jean-Marie Maillard, Frank Nijhoff, Vassilis Papageorgiou, Reinout Quispel, Alfred Ramani, Konstantin Rerikh, Jacques Sauloy, Junkichi Satsuma, Walter Van Assche, Alexander Veselov, Pawel Winternitz.

More information and the registration procedure can be found at `http://www.esf.org/euresco/02/pc02185`

Walter Van Assche
(walter@wis.kuleuven.ac.be)

5. International Workshop on Orthogonal Polynomials: Orthogonal Polynomials and Approximation Theory (IWOP'02), Leganés (Madrid), June 24–27, 2002

After a two-year break we will continue with the IWOP series started in 1992 (dedicated to Sobolev orthogonal polynomials), 1994 (polynomials orthogonal in the unit circle), 1996 (orthogonal polynomials in mathematical physics) and the last one in 1998 (dedicated to numerical applications and symbolic algorithms). This time, the 2002 edition will be dedicated to the *Orthogonal Polynomials and Approximation Theory.*

The invited speakers will be J. S. Geronimo (Georgia Institute of Technology, USA), P. González Vera (University of La Laguna, Spain), L. Jodar (Polytechnic University of Valencia, Spain), A. B. J. Kuijlaars (Katholieke University Leuven, Belgium), A. Martínez-Filkenshtein (University of Almería, Spain), and H. Stahl (Technical University Berlin, Germany).

Registration fee: The registration fees will be 120 Euros to be paid (in cash) in the opening session (Monday June 24, at 9:00). It includes the book of abstracts, all five lunches, and the Proceedings. Please fulfill the registration form available form the WWW site of the congress and send it to Jorge Arvesú (e-mail: `jarvesu@math.uc3m.es`) no later April 30, 2002. The **dead line** for sending a tentative title and abstract is April 30, 2002.

The Scientific Committee is Paco Marcellán (University of Carlos III de Madrid), Jesús Dehesa (University of Granada), Antonio Durán (University of Sevilla), Guillermo López Lagomasino (University of Carlos III de Madrid) and Walter Van Assche (Katholieke University Leuven)

The Organizing Committee is Paco Marcellán (University of Carlos III de Madrid) Jorge Arvesú (University of Carlos III de Madrid) and Renato Álvarez-Nodarse (University of Sevilla)

There will be six two-hour invited lectures, and 20 research seminars (20+5 min)

Further information will appear in the official URL site of the IWOP'02

`http://merlin.us.es/~renato/iwop/`

Renato Álvarez-Nodarse
(ran@us.es)

6. London Mathematical Society Invited Lecture Series 2002: Random matrices, random permutations and integrable lattices. School of Mathematics, Department of Applied Mathematics University of Leeds, Leeds, UK, June 27 - July 2, 2002

The 2002 LMS Lectures will be given in Leeds. This series is held annually: a single speaker gives a course of 10 expository lectures, examining an important topic in depth, over a five days period. In the 2002 program in Leeds there will be two lectures by Professor van Moerbeke every morning. The associated afternoon sessions will consist of two invited lectures to complement the course (further details will be announced later on). The lecture notes of the course will be published in one of the LMS venues.

Arrival day is Wednesday, June 26th, 2002. Lectures start on Thursday morning, June 27th, and finish on the next Tuesday, July 2nd, at noon. Sunday will be reserved as a free day —some excursions will be organised on that day—. A Conference Dinner is planned for the Friday night.

All mathematicians interested in the topic are welcome to attend the lectures. Limited funds are available to support participants. Priority for financial support will be given to research students and mathematicians who would benefit from attending the lectures, but who would otherwise be prevented from attending by financial constraints.

For details on financial support, please, contact the organiser.

Organizer: Vadim Kuznetsov. Department of Applied Mathematics, University of Leeds,
(vadim@maths.leeds.ac.uk).

Further information can be found in the WWW

http://maths.leeds.ac.uk/~vadim/LMS_course.htm

Vadim Kuznetsov
(vadim@amsta.leeds.ac.uk)

7. Patras Conference on Differential, Difference Equations and Applications. Patras (Greece), July 1–5, 2002

On July 1, 2002 an international conference on differential, difference equations and their applications (ICDDEA, in short) will be held in Patras, Greece, at the Conference and Cultural Hall of the University of Patras. The conference is dedicated to Professor Evangelos K. Ifantis, who has worked in the above mentioned areas of mathematics, on the occasion of his sixty-seventh birthday.

According to the overwhelming response to the first circular, we expect about 120 scientists from all over the world. If you would like to give a talk, please indicate its title on the registration form (which should be sent **before March 31**, 2002 to the Conference Mailing Address). We shall do our best to set up a balanced program.

The main subjects of ICDDEA will include:

- Ordinary Differential Equations.
- Partial Differential Equations.
- Ordinary Difference Equations.
- Partial Difference Equations.
- Applications.

The scientific program will consist of some plenary lectures of 1 hour, some invited lectures of 30 minutes and short communications of 20 minutes.

Conference Site: The conference will be held at the Conference and Cultural Hall of the University of Patras, located at the University Campus (this campus is well connected to the city center of Patras by buses. The city center is only 7 km from the Conference Site). The city itself and its surroundings are special attractions. Beaches are beside the hotels which are located 3 km from the Conference Site.

Registration fees Participants: 240 Euro. Students (under formal verification): 120 Euro. Accompanying person: 90 Euro.

After March 31, 2002, all participants and their companions must pay an additional fee of 30 Euro for late registration. Participant's and student's fee include: Admission to the Conference, Conference documents, Book of Abstracts, Conference Proceedings, Welcome dinner, Official reception, Guided visit to ancient Delphi, Lunches from 1 July to 5 July, Transportation from the hotels to the Conference Site and vice versa, Transportation from the hotels to the sites of the social events.

Payment of the registration fee should be made in Euro by bank-to-bank transfer to bank account no.131 01 009179 92 of Agricultural Bank of Greece, Patras branch. The total sum should be NETTO, i.e. all bank expenses must be covered by the payer and should not be deducted from the amount paid. A copy of the corresponding bank receipt should be sent together with the Registration Form (by fax or ordinary mail). In each payment the name(s) of the participant(s) must be stated.

Accommodation: All participants will be lodged in rooms at some of the hotels of Patras, which are near the Conference Site or in the center of Patras. Special rates have been arranged, starting at about 40 Euro per day for a single room with breakfast. See the web site for more information.

Dead line: All participants who wish to present a talk, are kindly requested to send a title and an abstract written in English before April 30, 2002. The abstract should not exceed one page but should have a minimum of 10 lines with the description of the topic covered in a comprehensive manner. Since the abstracts will be reproduced directly in the book of abstracts, their typographical quality should be as good as possible.

Conference Mailing Address:

INTERNATIONAL CONFERENCE ON DIFFERENTIAL, DIFFERENCE EQUATIONS AND THEIR APPLICATIONS
Department of Mathematics (to Prof. P. D. Siafarikas)
University of Patras
26500 Patras, Greece
Tel. - Fax: +(3) 061 997169
E-Mail: icddea@math.upatras.gr

The Local Organizing Committee consists of: C. Kokologiannaki (Department of Mathematics, University of Patras) P. Siafarikas (Department of Mathematics, University of Patras) A. Vourdas (Department of Electrical Engineering, University of Patras)

Patras may be reached easily by car, bus and train from Athens (220 km) or directly by many daily boats from Italy (Bari, Ancona, Brindisi, Venice).

Further information can be found in the official URL site of the ICDDEA

http://thalis.math.upatras.gr/~panos/EnglVersion/Webpage/icddea.html

Looking forward to seeing you in Patras.

Panayiotis Siafarikas
(panos@math.upatras.gr)

8. SIAM50, Philadelphia (USA), July 8-12, 2002

Information received from SIAM

SIAM will celebrate its 50th birthday at "SIAM50", a special annual meeting to be held in Philadelphia, July 8-12, 2002. This meeting will survey past accomplishments, highlight today's lively areas, and attempt to look into the future of applied and computational mathematics. The meeting themes cover SIAM's interests, a partial list of which ranges

- from analysis to applications,
- from computing to control to computational science,
- from dynamics to design,
- from linear algebra to life sciences,
- from optimization to outreach.

Five outstanding researchers have agreed to give plenary talks:

1. Ingrid Daubechies (Princeton University),
2. Martin Groetschel (ZIB, Berlin),
3. Philip J. Holmes (Princeton University),
4. Cleve B. Moler (The Mathworks), and
5. George C. Papanicolaou (Stanford University).

SIAM50 will also feature twenty topical speakers covering the breadth of SIAM's interests. A novel element of SIAM50 will be five "minitutorials", invited minisymposia intended for non-experts. These sessions, chosen by a special committee, focus on applications where mathematics and computing are making substantial contributions: learning-based statistical methods in computer vision; reverse engineering gene networks; elliptic curve cryptography; discontinuous Galerkin methods for partial differential equations; and harmonic analysis in geometric modeling.

As well as a wide variety of technical sessions, SIAM50 will offer:

- the opening reception with a 50-year retrospective,
- the community lecture followed by a reception at the Franklin Institute,
- exhibits about the history and future of applied mathematics,
- an evening of professional development organized by a committee of SIAM's next generation,
- diversity day, teachers day and
- a gala banquet. (Come prepared with a toast for SIAM.)

SIAM50 will include approximately 100 minisymposia. Details and updates are available at the SIAM website:

http://www.siam.org/meetings/SIAM50/

The organizing Committee is

- Marsha J. Berger, Courant Institute, New York University
- Heinz Engl, Johannes Kepler Universität, Linz
- Martin Golubitsky (co-chair), University of Houston
- Walter Strauss, Brown University
- Margaret H. Wright (co-chair), Courant Institute, New York University

Renato Álvarez-Nodarse
(ran@us.es)
Martin Muldoon
(muldoon@yorku.ca)

Notice: An OPSF topical lecture and minisymposium were proposed for this meeting. Because the lecture proposal was not included in the program for SIAM50, the activity group officers decided to withdraw the minisymposium. For details see OPSF Net Volume 8, Number 6.

9. IMA 2002 Summer Program: Special Functions in the Digital Age, Institute for Mathematics and its Applications, University of Minnesota (USA), July 22-August 2, 2002.

Information taken from

http://www.ima.umn.edu/digital-age/

Description.

The IMA workshop will use the DLMF (Digital Library of Mathematical Functions) project as a foundation and discuss what more should be done, what areas are incomplete or unrepresented, what are the resulting mathematical, symbolic, numerical and web issues, applications in

physics, chemistry, etc., relationships with the Bateman project, and potential for other digital libraries in other mathematical areas. The workshop is to have a very broad outlook, encompassing a wide range of subjects connected with special functions, as well as issues concerning digital libraries and the delivery of mathematics over the internet.

A major portion of this program (7 days) will be assessments of research progress and promising vistas for future research by distinguished experts in the areas of asymptotics, combinatorial functions, statistics, computer algebra, algebraic and group theoretic methods, applications to the physical sciences, orthogonal polynomials, numerical methods, zeta functions & random matrices, Painlevé functions, elliptic functions, elliptic hypergeometric functions and the Heun function group, with the aim of pointing out what is of greatest importance in the theory and applications, and what should be included in digital library projects.

The remainder of the program (3 days) will be devoted to Digital Libraries generally and, specifically, Digital Libraries and the Mathematical Sciences, including the delivery of mathematics over the Internet. It will conclude with a panel on the "Future of Mathematical Digital Libraries", with panelists from the special functions research and users communities, as well as representatives from mathematics societies and government funding agencies.

There will be several discussion sessions to develop specific recommendations for special function topics to be included in future Digital Libraries in Mathematics. Also there will be poster sessions, and several software demonstrations (particularly of computer algebra and numerical packages for special functions), and much of the software will be available during the program for informal use by participants. This program will link with special function related sessions at the Foundations of Computational Mathematics (FoCM'02) meeting that will be hosted by the IMA, August 5–15, 2002.

The program is meant for researchers in the theory and computation of special functions (definitely including people new to the field who are looking for the most promising areas for future research), for users of special functions, and for persons interested in the delivery of mathematics over the Internet.

For additional information on the Program Plan and Tentative Schedule as well as a list of confirmed participants please visit the Conference site

`http://www.ima.umn.edu/digital-age/`

Walter Van Assche
(walter@wis.kuleuven.ac.be)

10. Workshop on Special Functions at FoCM'02, Foundations of Computational Mathematics conference, Minnesota (USA), August 5-7, 2002

The next Foundations of Computational Mathematics conference will be held at University of Minnesota on 5-14 August 2002, as guests of the Institute for Mathematics and its Applications.

With plenary talks taking part in morning, afternoons during the FoCM'02 conference will be devoted to workshops. Each workshop will be three-days long, with six workshops running in parallel. The responsibility for organising, scheduling and timetabling the workshops rests with workshop organisers.

Talks in FoCM workshops are by invitation, but feel free to contact relevant workshop organisers if you wish to present a talk.

During the Conference there will be a three days (5–7 August) workshop on "Special Functions" organized by Tom Koornwinder (thk@science.uva.nl) (Amsterdam) and Adri Olde Daalhuis (adri@maths.ed.ac.uk) (Edinburgh).

For further information see the web:

`http://turing.wins.uva.nl/~thk/FoCM02/`

Renato Álvarez-Nodarse
(ran@us.es)
Rafael J. Yáñez
(ryanez@ugr.es)

11. Summer school in Orthogonal Polynomials and Special Functions. Leuven (Belgium), August 12-17, 2002

From August 12-17, 2002, a summer school in Orthogonal Polynomials and Special Functions takes place at the Katholieke Universiteit Leuven, Belgium. This summer school is the third in a series after Laredo (Spain), 2000, and Inzell (Germany), September 17-21, 2001 (see `http://www.gsf.de/ibb/ag1/summerschool/`).

The lecturers for the Leuven summer school are:

- Wolfram Koepf (Kassel): Computer Algebra Algorithms for Orthogonal Polynomials and Special Functions.
- Arno Kuijlaars (Leuven): Riemann-Hilbert Analysis of Orthogonal Polynomials.
- Adri Olde Daalhuis (Edinburgh): Exponential Asymptotics.
- Dennis Stanton (Minnesota): TBA.

- Joris Van der Jeugt (Gent): $3n-j$ coefficients and orthogonal polynomials of hypergeometric type.

The school is organised by Walter Van Assche and Erik Koelink. More information on the 2002 Leuven summer school can be found at

`http://aw.twi.tudelft.nl/~koelink/opsf2002.html`

and will also be announced in the OP-SF NET and Newsletter.

Erik Koelink
(koelink@dutiaw4.twi.tudelft.nl)

12. Seventh International Symposium on Orthogonal Polynomials, Special Functions and Applications Copenhagen (Denmark), August 18-22, 2003

At the Sixth International Symposium on Orthogonal Polynomials, Special Functions and Applications (The 6th OPSFA) in Rome, June 18-22, 2001, it was discussed when and where the next meeting should take place. Teams from Holland and Denmark were both willing to host a meeting in 2003 (see the item below). It was left to those teams to find an agreement.

Such an agreement has now been reached to the effect that the Copenhagen team promises to arrange the *Seventh International Symposium on Orthogonal Polynomials, Special Functions and Applications (The 7th OPSFA)* in Copenhagen, August 18-22, 2003.

The plan is that the meeting will take place at the Department of Mathematics of the University of Copenhagen.

The conference will be a continuation of the series of International Conferences with the meetings of Sevilla (1997), Patras (1999) and Rome/Ostia (2001) as the immediate predecessors.

Information about the meeting will be made available at the homepage

`http://www.math.ku.dk/conf/opsfa2003/`

The international scientific committee is

- Antonio J. Duran, University of Sevilla, Spain
- Mourad E. H. Ismail, University of South Florida, USA
- Erik Koelink, Technical University Delft, the Netherlands
- Paolo Emilio Ricci, University of Rome "La Sapienza", Italy
- Vilmos Totik, Bolyai Institute, Hungary and University of South Florida, USA
- Christian Berg, University of Copenhagen
- Henrik L. Pedersen, University of Copenhagen

The local organizing committee will be Christian Berg, Jacob Stordal Christiansen and Henrik L. Pedersen.

Christian Berg
(berg@math.ku.dk)

13. Laredo Summer School on Approximation Methods in Systems Theory, Laredo, Spain. September 2-6, 2002.

An international Summer School on Approximation Methods in Systems Theory will be held in Laredo, Spain in the framework of The Summer Courses of Universidad de Cantabria. This is a joint activity with Universidad Carlos III de Madrid in order to attract postgraduate students as well as researchers interested in Approximation Theory and the applications in Systems Theory.

The lecturers will be:

- Laurent Baratchart (INRIA, Sophia-Antipolis, France) Extremal Problems for Analytic Functions and System Identification.
- Adhemar Bultheel (Department of Computer Science, Katholieke Universiteit Leuven, Belgium) Orthogonal bases for numerically Robust System Identification.
- Diederich Hinrichsen (Fachbereich 3, (Mathematik), Universität Bremen, Germany) Spectral Analysis of uncertain systems.
- Guillermo López Lagomasino (Departamento de Matemáticas, Universidad Carlos III de Madrid, Spain) Approximation of Transfer Functions for Control Systems of finite dimension.
- Francisco Marcellán (Departamento de Matemáticas, Universidad Carlos III de Madrid, Spain) Orthogonal Functions in Systems and Control.

Postgraduate students can apply for grants. For more information, please contact the organizers before April 1st, 2002.

Organizers: Guillermo López Lagomasino (lago@math.uc3m.es) and Francisco Marcellán (pacomarc@ing.uc3m.es). Departamento de Matemáticas. Universidad Carlos III de Madrid.

Francisco Marcellán
(pacomarc@ing.uc3m.es)

Future Planning

There are plans to organize a summer school on Orthogonal Polynomials and Special Functions in Portugal in July 2003 (July). (Contact person: Amilcar Branquinho). This is in the series Inzell, 2001 (OP-SF NET 8.3, Topic #3), and Leuven, 2002 (OP-SF NET 8.4, Topic #4). The coordinator of the three summer schools is Erik Koelink (koelink@dutiaw4.twi.tudelft.nl). These summer schools are part of our Activity Group's scientific program. The scientific committee consists of Erik Koelink, Rupert Lasser, Amilcar Branquinho, Paco Marcellan and Walter Van Assche.

Books and Journals

Book Announcements

1. Proceedings of 1998 Mount Holyoke Conference, Edited by: Mourad E. H. Ismail and Dennis W. Stanton. American Mathematical Society, Series: Contemporary Mathematics, Volume: 254 (2000) ISBN: 0-8218-1150-9

This information is taken from

`http://www.ams.org/bookstore`

Description

This volume presents the proceedings of the Joint Summer Research Conference on q-series, combinatorics, and computer algebra held at Mount Holyoke College (South Hadley, MA). All of the papers were contributed by participants and offer original research on topics of current interest. Articles in the book reflect the diversity of areas that overlap with q-series, as well as the usefulness of q-series across the mathematical sciences. The conference was held in honor of Richard Askey on the occasion of his 65th birthday and the proceedings contain an article about Askey's contributions to special functions.

Contents:

- G. Gasper, M. E.-H. Ismail, T. Koornwinder, P. Nevai, and D. Stanton, The mathematical contributions of Richard Askey
- M. E. H. Ismail and D. W. Stanton, Curriculum vitae of Richard A. Askey
- K. Alladi, Reformulations of a partition theorem of Göllnitz and q-series identities
- G. E. Andrews, Schur's theorem, partitions with odd parts and the Al-Salam-Carlitz polynomials
- K. Aomoto and K. Iguchi, Singularity and monodromy of quasi-hypergeometric functions
- B. C. Berndt, H. H. Chan, and S.-S. Huang, Incomplete elliptic integrals in Ramanujan's lost notebook
- W. C. Connett and A. L. Schwartz, Measure algebras associated with orthogonal polynomials
- D. Foata and G. Han, Word straightening and q-Eulerian calculus
- O. Foda, K. S. M. Lee, Y. Pugai, and T. A. Welsh, Path generating transforms
- G. Gasper, q-extensions of Erdélyi's fractional integral representations for hypergeometric functions and some summation formulas for double q-Kampé de Fériet series
- R. Wm. Gosper, Jr. and S. K. Suslov, Numerical investigation of basic Fourier series
- M. D. Hirschhorn, An identity of Ramanujan, and applications
- M. E. H. Ismail and D. W. Stanton, Addition theorems for the q-exponential function
- K. W. J. Kadell, The Schur functions for partitions with complex parts
- J. Kaneko, On Forrester's generalization of Morris constant term identity
- A. N. Kirillov, New combinatorial formula for modified Hall-Littlewood polynomials
- C. Krattenthaler, Schur function identities and the number of perfect matchings of Holey Aztec rectangles
- S. C. Milne, A new $U(n)$ generalization of the Jacobi triple product identity
- H. Rosengren, A new quantum algebraic interpretation of the Askey-Wilson polynomials
- S. Sahi, Some properties of Koornwinder polynomials
- M. Schlosser, A new multidimensional matrix inversion in A_r

Martin Muldoon
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2. Selected Papers of Frank Olver (In 2 Volumes). World Scientific Series in 20th Century Mathematics, Vol. 7 (2000) Edited by Roderick Wong. ISBN 981-02-4106-2(set)

This information is taken from

`http://www.wspc.com.sg/books/mathematics/4251.html`

This is a collection of selected papers written by Frank W J Olver from 1949 to 1999. It contains his most important contributions to the fields of asymptotic analysis and numerical analysis, including the global existence of uniform asymptotic expansions for solution of ordinary differential equations and construction of error bounds. It is a valuable collection for anyone who works in, or uses, asymptotics, and should be on the shelves of all major libraries.

Contents:

- The Asymptotic Solution of Linear Differential Equations of the Second Order for Large Values of a Parameter
- The Asymptotic Expansion of Bessel Functions of Large Order Uniform Asymptotic Expansions for Weber Parabolic Cylinder Functions of Large Orders
- Error Bounds for the Liouville-Green (or WKB) Approximation
- Error Analysis of Phase-Integral Methods
- Numerical Solution of Second-Order Linear Difference Equations
- Unsolved Problems in the Asymptotic Estimation of Special Functions
- General Connection Formulae for Liouville-Green Approximations in the Complex Plane
- Beyond Floating Point
- On Stokes' Phenomenon and Converging Factors
- Airy and Bessel Functions by Parallel Integration of ODEs
- Hyperasymptotic Solutions of Second-Order Linear Differential Equations
- On the Asymptotic and Numerical Solution of Linear Ordinary Differential Equations and 42 other papers

These two volumes exemplify a redoubtable mathematical talent, the work of a man who has done more than almost anyone else in the 20th century to bestow on the discipline of applied mathematics the elegance and rigor that its earliest practitioners such as Gauss and Laplace would have wished for it [...] the books are beautifully bound and printed [...] D S Jones has contributed an intimate and adulatory introduction, and Roderick Wong should be congratulated for bringing the entire effort to fruition.

From the review by Jet Wimp in SIAM Review, Vol 43 (2001)

Martin Muldoon
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3. Asymptotic Approximations of Integrals. R. Wong. SIAM (2001), ISBN 0-89871-497-4

This information is taken from

`http://www.siam.org/catalog/`

The Society for Industrial and Applied Mathematics (SIAM) announces the August 2001 publication of Asymptotic Approximations of Integrals by Roderick Wong as volume 34 in its Classics in Applied Mathematics series. Asymptotic methods are frequently used in many branches of both pure and applied mathematics, and this classic text remains the most up-to-date book dealing with one important aspect of this area, namely, asymptotic approximations of integrals. In Asymptotic Approximations of Integrals, all results are proved rigorously, and many of the approximation formulas are accompanied by error bounds. A thorough discussion on multidimensional integrals is given, and references are provided. Asymptotic Approximations of Integrals contains the distributional method, which is not available elsewhere. Most of the examples in this text come from concrete applications.

Since its publication twelve years ago, significant developments have occurred in the general theory of asymptotic expansions, including smoothing of the Stokes phenomenon, uniform exponentially improved asymptotic expansions, and hyperasymptotics. These new concepts belong to the area now known as exponential asymptotics. Expositions of these new theories are available in papers published in various journals, but not yet in book form.

This book can be used either as a text for graduate students in mathematics, physics, and engineering or as a reference for research workers in these fields. Engineers and scientists will find it easy to apply the techniques and results presented.

Roderick S. C. Wong is a Professor of Mathematics and Dean of the Faculty of Science and Engineering at the City University of Hong Kong. The author of over 80 published papers and four edited books, Professor Wong currently serves on the editorial board of seven journals. He is the

recipient of several prestigious honors, awards, and grants and is an honorary professor at three universities.

A complete table of contents and other information are available at SIAM's Web site at www.siam.org/catalog/

For additional information and review copies, please contact: Sara J. Triller, Developmental Editor (triller@siam.org)

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4. On a Class of Incomplete Gamma Functions with Applications. M. Aslam Chaudhry and Syed M. Zubair, Chapman & Hall/CRC (2001), ISBN 1-58488-143-7.

This information is taken from

http://www.crcpress.com

Description

The subject of special functions is rich and expanding continuously with the emergence of new problems encountered in engineering and applied science applications. The development of computational techniques and the rapid growth in computing power have increased the importance of the special functions and their formulae for analytic representations. However, problems remain, particularly in heat conduction, astrophysics, and probability theory, whose solutions seem to defy even the most general classes of special functions.

On a Class of Incomplete Gamma Functions with Applications introduces a class of special functions, developed by the authors, useful in the analytic study of several heat conduction problems. It presents some basic properties of these functions, including their recurrence relations, special cases, asymptotic representations, and integral transform relationships. The authors explore applications of these generalized functions to problems in transient heat conduction, special cases of laser sources, and problems associated with heat transfer in human tissues. They also discuss applications to astrophysics, probability theory, and other problems in theory of functions and present a fundamental solution to time-dependent laser sources with convective-type boundary conditions.

Appendices include an introduction to heat conduction, Fourier conduction, a table of Laplace transforms, and well-known results regarding the improper integrals. Filled with tabular and graphical representations for applications, this monograph offers a unique opportunity to add to your mathematical toolbox a new and useful class of special functions.

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5. Ramanujan: Essays and Surveys. Edited by: Bruce C. Berndt, and Robert A. Rankin. American Mathematical Society and London Mathematical Society, Series: History of Mathematics, Volume: 22 (2001). ISBN: 0-8218-2624-7.

This information is taken from

http://www.ams.org/bookstore

Description

This book contains essays on Ramanujan and his work that were written especially for this volume. It also includes important survey articles in areas influenced by Ramanujan's mathematics. Most of the articles in the book are nontechnical, but even those that are more technical contain substantial sections that will engage the general reader.

The book opens with the only four existing photographs of Ramanujan, presenting historical accounts of them and information about other people in the photos. This section includes an account of a cryptic family history written by his younger brother, S. Lakshmi Narasimhan. Following are articles on Ramanujan's illness by R. A. Rankin, the British physician D. A. B. Young, and Nobel laureate S. Chandrasekhar. They present a study of his symptoms, a convincing diagnosis of the cause of his death, and a thorough exposition of Ramanujan's life as a patient in English sanitariums and nursing homes.

Following this are biographies of S. Janaki (Mrs. Ramanujan) and S. Narayana Iyer, Chief Accountant of the Madras Port Trust Office, who first communicated Ramanujan's work to the Journal of the Indian Mathematical Society. The last half of the book begins with a section on "Ramanujan's Manuscripts and Notebooks". Included is an important article by G. E. Andrews on Ramanujan's lost notebook.

The final two sections feature both nontechnical articles, such as Jonathan and Peter Borwein's "Ramanujan and π", and more technical articles by Freeman Dyson, Atle Selberg, Richard Askey, and G. N. Watson.

This volume complements the book *Ramanujan: Letters and Commentary*, Volume 9, in the AMS series, History of Mathematics. For more on Ramanujan, see these AMS publications, *Ramanujan: Twelve Lectures on Subjects Suggested by His Life and Work*, Volume 136.H, and *Collected Papers of Srinivasa Ramanujan*, Volume 159.H, in the AMS Chelsea Publishing series.

Copublished with the London Mathematical Society. Members of the LMS may order directly from the AMS at the AMS member price. The LMS is registered with the Charity Commissioners.

Contents

- R. A. Rankin – Commentary (by R. A. R.)
- The life of Ramanujan
  - The four photographs of Ramanujan
  - The books studied by Ramanujan in India
  - The influence of Carr's synopsis on Ramanujan
  - The notebooks of Srinivasa Ramanujan
  - A recently discovered letter giving Ramanujan's examination scores
  - On Ramanujan
  - The Ramanujan family record
- Ramanujan's illness
  - Ramanujan as a patient
  - Ramanujan's illness
  - An incident in the life of S. Ramanujan, F.R.S.: Conversations with G. H. Hardy, F.R.S. and J. E. Littlewood, F.R.S. and their sequel
- S. Janaki
  - S. Janaki Ammal (Mrs. Ramanujan)
  - Conversation "I didn't understand his work, but I knew his worth"
- S. Narayana Iyer
  - A short biography of S. Narayana Iyer
  - The distribution of primes
  - Some theorems in summation
- E. H. Neville
  - Srinivasa Ramanujan
  - University lectures in Madras
- Ramanujan's manuscripts and notebooks
  - Ramanujan's manuscripts and notebooks
  - Ramanujan's manuscripts and notebooks, II
  - An overview of Ramanujan's notebooks
  - An introduction to Ramanujan's "lost" notebook
- Nontechnical articles on Ramanujan's work
  - Ramanujan and π
  - π related developments since 1988
  - Reflections around the Ramanujan centenary
  - The problems submitted by Ramanujan to the Journal of the Indian Mathematical Society
- Somewhat more technical articles on Ramanujan's work
  - A walk through Ramanujan's garden
  - Ramanujan and hypergeometric and basic hypergeometric series
  - The final problem: An account of the mock theta functions

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6. q-Series with Applications to Combinatorics, Number Theory, and Physics Edited by: Bruce C. Berndt and Ken Ono. American Mathematical Society Series: Contemporary Mathematics, Volume: 291, (2001) ISBN: 0-8218-2746-4

This information is taken from

http://www.ams.org/bookstore

Description

The subject of q-series can be said to begin with Euler and his pentagonal number theorem. In fact, q-series are sometimes called Eulerian series. Contributions were made by Gauss, Jacobi, and Cauchy, but the first attempt at a systematic development, especially from the point of view of studying series with the products in the summands, was made by E. Heine in 1847. In the latter part of the nineteenth and in the early part of the twentieth centuries, two English mathematicians, L. J. Rogers and F. H. Jackson, made fundamental contributions.

In 1940, G. H. Hardy described what we now call Ramanujan's famous ${}_1\psi_1$ summation theorem as "a remarkable formula with many parameters". This is now one of the fundamental theorems of the subject.

Despite humble beginnings, the subject of q-series has flourished in the past three decades, particularly with its applications to combinatorics, number theory, and physics. During the year 2000, the University of Illinois embraced The Millennial Year in Number Theory. One of the events that year was the conference q-Series with Applications to Combinatorics, Number Theory, and Physics. This event gathered mathematicians from the world over to lecture and discuss their research.

This volume presents nineteen of the papers presented at the conference. The excellent lectures that are included chart pathways into the future and survey the numerous applications of q-series to combinatorics, number theory, and physics.

Contents (authors names are not given)

1. q-series.
2. Congruences and conjectures for the partition function

3. MacMahon's partition analysis VII: Constrained compositions
4. Crystal bases and q-identities
5. The Bailey-Rogers-Ramanujan group
6. Multiple polylogarithms: A brief survey
7. Swinnerton-Dyer type congruences for certain Eisenstein series
8. More generating functions for L-function values
9. On sums of an even number of squares, and an even number of triangular numbers: An elementary approach based on Ramanujan's ${}_1\psi_1$ summation formula
10. Some remarks on multiple Sears transformations
11. Another way to count colored Frobenius partitions
12. Proof of a summation formula for an $\tilde{A}_n$ basic hypergeometric series conjectured by Warnaar
13. On the representation of integers as sums of squares
14. 3-regular partitions and a modular $K3$ surface
15. A new look at Hecke's indefinite theta series
16. A proof of a multivariable elliptic summation formula conjectured by Warnaar
17. Multilateral transformations of q-series with quotients of parameters that are nonnegative integral powers of q
18. Completeness of basic trigonometric system in $\mathcal{L}^p$
19. The generalized Borwein conjecture. I. The Burge transform
20. Mock ϑ-functions and real analytic modular forms

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7. Asymptotics and Mellin-Barnes Integrals - R.B. Paris and D. Kaminski. Cambridge UP, 2001. 422 p. ISBN 0-521-79001-8 hc. (Encyclopedia of mathematics and its applications v. 85).

This book is a very welcome addition to the presently most interesting books on asymptotics by Olver [1] and Wong [2]. First an introduction to asymptotics of integrals is given and then the special features of Mellin-Barnes integrals are considered. These integrals have integrands with rational functions of gamma functions, and arise in the inversion of Mellin transforms. Many special functions of hypergeometric type, and integrals or products of these functions, can be written as such integrals. Other series and integrals can be transformed into these forms also, as is done, for example, for the generalised Euler-Jacobi series $S_p(a) = \sum_{n=0}^{\infty} \exp(-an^p)$, $p > 0$ of which the asymptotic behaviour for $a \downarrow 0$ is studied.

Much attention is paid to topics that gave recently new insights in the theory of asymptotic expansions, such as the Stokes phenomenon (the sudden change of certain constants in asymptotic approximations), exponential asymptotics (the role of exponentially small terms in asymptotic approximations), and to hyperasymptotics (the expansion of remainders in asymptotic approximations at an optimal point in the expansion).

Other topics are expansions for the Riemann zeta function on the critical line, the Pearcey integral (a two-variable generalisation of the classical Airy function), and applications to number-theoretic examples, solving differential, difference and integral equations. There is a chapter on multiple Mellin-Barnes integrals, with applications to double integrals of Laplace type (and of higher dimension), with extensive discussion of the role of the Newton diagram for investigating phase functions with interior, boundary and exterior critical points. Biographies of Mellin and Barnes are also included.

The book should be accessible to readers with a solid undergraduate background in functions of a single complex variable. I can highly recommend this book to anyone interested in asymptotics of integrals or in asymptotic methods for special functions.

1.- F.W.J. Olver (1974), *Asymptotics and Special Functions* (Academic Press, New York); reprinted in 1997 (A.K. Peters, Massachusetts).

2.- R. Wong (1989), *Asymptotic Expansion of Integrals* (Academic Press, New York); reprinted in 2001 (SIAM, Philadelphia).

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8. On a class of incomplete gamma functions with applications - M. Aslam Chaudhry and Syed M. Zubair. Boca Raton, FL: Chapman & Hall/CRC. 2001. 493 p. ISBN 1-58488-143-7/hc.

The book gives a general introduction to functions related to the gamma function, but the central idea is the generalisation of these functions by including extra terms or parameters in the standard integral representation of the functions. The incomplete gamma functions are generalised into the form $\int_0^x t^{\alpha-1} \exp(-t - b/t)\, dt$, which for

$b = 0$ is the standard form, and which for $x = \infty$ is considered as the generalised gamma function (which in fact becomes a $K-$Bessel function). The beta integral, the Riemann zeta function and Fresnel integrals are generalised in a similar way. Many properties and relations are discussed for these new functions, and a further generalisation of the incomplete gamma function is introduced by replacing $\exp(-b/t)$ by a $K-$Bessel function. If possible, relations with generalised hypergeometric functions are given. For example, the Kampé de Fériet function of two variables and the Fox $H-$function are used for this purpose. Several introductions are motivated by considering problems from mathematical physics and probability theory (generalised Gaussian distributions); examples from heat conduction problems are discussed in several chapters of the book. Many tables of computed values and graphs of the generalised functions and of quantities arising in problems from physic are given. In an appendix a table of Laplace transforms and a number of theorems on integrals dependent on parameters are included (differentiation, interchanging the order of integration, and so on).

Without any doubt, the standard special functions can be generalised or extended in various ways to new classes of functions. A nice point of this book is that several generalisations considered here play a role in interesting problems from mathematical physics.

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(nicot@cwi.nl)

OP-SF preprints

In this section we will include information on some recent preprints related to Orthogonal Polynomials and Special Functions that were recently posted or cross-listed to one of the subcategories of the xxx archives. See:

- http://front.math.ucdavis.edu/math.CA
- http://front.math.ucdavis.edu/math.CO
- http://front.math.ucdavis.edu/math.QA
- http://xxx.lanl.gov/archive/solv-int

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1. math.CO/0110031

   Title: Cumulants, lattice paths, and orthogonal polynomials

   Authors: Franz Lehner

   Subj-class: Combinatorics, MSC-class: 05A15, 46L54; 11A55, 05E35

2. math.CO/0110165

   Title: New Identities of Hall-Littlewood Polynomials and Rogers-Ramanujan Type

   Authors: F. Jouhet, J. Zeng

   Subj-class: Combinatorics

3. math.NT/0110238

   Title: Some new formulas for π

   Authors: Gert Almkvist, Christian Krattenthaler, and Joakim Petersson.

   Subj-class: Number Theory; Classical Analysis, MSC-class: 40A25

4. math.CA/0110241

   Title: Geometric and Physical Interpretation of Fractional Integration and Fractional Differentiation

   Authors: Igor Podlubny

   Subj-class: Classical Analysis; General Mathematics; Mathematical Physics, MSC-class: 26A33.

5. math.QA/0110269

   Title: A remark on Fourier pairing and binomial formula for Macdonald polynomials

   Authors: Andrei Okounkov

   Subj-class: Quantum Algebra; Combinatorics

6. math.CO/0110307

   Title: The generalized Borwein conjecture. II. Refined q-trinomial coefficients

   Authors: S. Ole Warnaar

   Subj-class: Combinatorics; Quantum Algebra, MSC-class: Primary 05A15, 05A19; Secondary 33D15

7. hep-ph/0110083

   Title: Nested Sums, Expansion of Transcendental Functions and Multi-Scale Multi-Loop Integrals

   Authors: Sven Moch, Peter Uwer, Stefan Weinzierl

   Subj-class: High Energy Physics - Phenomenology; Quantum Algebra

8. hep-th/0110097

   Title: Lucas polynomials and a standard Lax representation for the polytropic gas dynamics

   Authors: A. Constandache, Ashok Das, F. Toppan

   Subj-class: High Energy Physics - Theory; Exactly Solvable and Integrable Systems; Number Theory

9. hep-th/0110278

   Title: Regularized Green's Function for the Inverse Square Potential

   Authors: Horacio E. Camblong, Carlos R. Ordoñez

   Subj-class: High Energy Physics - Theory; Mathematical Physics

10. math-ph/0110006

Title: The Weyl Algebra, Spherical Harmonics, and Hahn Polynomials

Authors: Ewa Gnatowska, Aleksander Strasburger

Subj-class: Mathematical Physics; Representation Theory, MSC-class: 81R10, 33C55

11. math-ph/0110020

Title: Heat Kernel Asymptotics of Zaremba Boundary Value Problem

Authors: Ivan Avramidi

Subj-class: Mathematical Physics; Analysis of PDEs; Spectral Theory, MSC-class: 58J35, 58J37, 58J50, 58J32, 35P20, 35K20

12. math-ph/0110038

Title: An elementary construction of lowering and raising operators for the trigonometric Calogero-Sutherland model

Authors: Wifredo García Fuertes, Miguel Lorente, Askold Perelomov

Subj-class: Mathematical Physics (To appear in J. Phys. A: Math. Gen.)

13. math-ph/0110042

Title: Closed-form sums for some perturbation series involving associated Laguerre polynomials

Authors: Richard L. Hall, Nasser Saad, Attila B. von Keviczky

Subj-class: Mathematical Physics

14. math.CO/0109010

Title: Combinatorial proofs of q-series identities

Authors: Robin Chapman

Subj-class: Combinatorics; Number Theory, MSC-class: 05A17;11P81

15. math.CO/0109013

Title: Matrices related to the Pascal triangle

Authors: Roland Bacher

Subj-class: Combinatorics; Number Theory, MSC-class: 11B39, 11B65, 11C20

16. math.GM/0109072

Title: A further step in the proof of Riemann hypothesis

Authors: Matti Pitkanen

Subj-class: General Mathematics

17. math.CO/0109141

Title: The WP - Bailey Tree and its Implications

Authors: George E. Andrews, Alexander Berkovich

Subj-class: Combinatorics; Number Theory; Quantum Algebra, MSC-class: 05A10, 05A19, 05A30, 11B65, 33D15

18. math.CA/0109149

Title: Elliptic solitons and Heun's equation

Authors: A.O. Smirnov

Subj-class: Classical Analysis; Spectral Theory

19. math.CA/0109185

Title: The Askey Scheme for Hypergeometric Orthogonal Polynomials Viewed from Asymptotic Analysis

Authors: Nico M. Temme, Jose L. López

Subj-class: Classical Analysis, MSC-class: 33C45, 41A60, 41A10

Journal-ref: J. Comput. Appl. Math. Vol. 133 (2001) 623–633

20. math.NA/0109187

Title: On Non-Oscillating Integrals for Computing Inhomogeneous AiryFunctions

Authors: Amparo Gil, Javier Segura, Nico M. Temme

Subj-class: Numerical Analysis; Classical Analysis, MSC-class: 33C10, 41A60, 65D20

Journal-ref: Math. Comput. 70, 1183-1194 (2000)

21. math.CA/0109188

Title: Numerical and Asymptotic Aspects of Parabolic Cylinder Functions

Authors: Nico M. Temme

Subj-class: Classical Analysis; Numerical Analysis, MSC-class: 33C15, 41A60, 65D20

Journal-ref: J. Comput. Appl. Math. 121 (2000) 221-246

22. math.CA/0109201

Title: Meixner functions and polynomials related to Lie algebra representations

Authors: Wolter Groenevelt, Erik Koelink

Subj-class: Classical Analysis; Representation Theory

23. math.CA/0109222

Title: Contiguous relations of hypergeometric series

Authors: Raimundas Vidunas

Subj-class: Classical Analysis, MSC-class: 33C05; 33C20; 33D15

24. hep-th/0109028

Title: Coherent States for Generalized Laguerre Functions

Authors: Ahmed Jellal

Subj-class: High Energy Physics - Theory; Mathematical Physics

25. hep-th/0109136

Title: Analytic continuation of the Hurwitz Zeta Function with physical application

Authors: Vittorio Barone Adesi, Sergio Zerbini

Subj-class: High Energy Physics - Theory; Mathematical Physics

26. math-ph/0109004

Title: Zeros of some bi-orthogonal polynomials

Authors: M.L. Mehta (CEA/Saclay, SPhT, France)

Subj-class: Mathematical Physics

27. math-ph/0109006

Title: On recent strategies proposed for proving the Riemann hypothesis

Authors: E. Elizalde, V. Moretti, S. Zerbini

Subj-class: Mathematical Physics; General Mathematics; Number Theory, MSC-class: 11M26; 30B40; 14G10; 46E20

28. math-ph/0109018

Title: A concise expression for the ODE's of orthogonal polynomials

Authors: Bertrand Eynard

Subj-class: Mathematical Physics; Spectral Theory, MSC-class: 05Exx

29. nlin.SI/0110028

Title: First degree birational transformations of the Painlevé equations and their contiguity relations

Authors: Robert Conte, Micheline Musette

Subj-class: Exactly Solvable and Integrable Systems

30. nlin.SI/0110031

Title: A truncation for obtaining all the first degree birational transformations of the Painlevé transcendents

Authors: Robert Conte, Micheline Musette

Subj-class: Exactly Solvable and Integrable Systems

31. hep-th/0110126

Title: New relations in the algebra of the Baxter Q-operators

Authors: A. A. Belavin, A. V. Odesskii, R. A. Usmanov

Subj-class: High Energy Physics - Theory; Quantum Algebra; Exactly Solvable and Integrable Systems

32. math-ph/0110011

Title: The XXZ spin chain at $\Delta = -1/2$: Bethe roots, symmetric functions and determinants

Authors: Jan de Gier, Murray Batchelor, Bernard Nienhuis, Saibal Mitra

Subj-class: Mathematical Physics; Combinatorics; Statistical Mechanics; Exactly Solvable and Integrable Systems, MSC-class: 82B23; 05A15

33. math.QA/0109140

Title: Difference L operators related to q-characters

Authors: A.Kuniba, M.Okado, J.Suzuki, Y.Yamada

Subj-class: Quantum Algebra; Representation Theory; Exactly Solvable and Integrable Systems, MSC-class: 81R50, 82B23

34. math.NT/0111012

Title: Spacing of zeros of Hecke L-functions and the class number problem

Authors: J. Brian Conrey, Henryk Iwaniec

Subj-class: Number Theory

35. math.NT/0111013

Title: Real zeros of quadratic Dirichlet L-functions

Authors: J. Brian Conrey, Kannan Soundararajan

Subj-class: Number Theory

36. math.QA/0111022

Title: Some remarks on q-deformed multiple polylogarithms

Authors: Karl-Georg Schlesinger

Subj-class: Quantum Algebra, MSC-class: 11G55; 17B37

37. math.CO/0111059

Title: Nouvelles statistiques de partitions pour les q-nombres de Stirling de seconde espece

Authors: Zeng jiang et Ksavrelof gerald

Subj-class: Combinatorics

38. math.CA/0111252

Title: The Riemann-Hilbert approach to strong asymptotics for orthogonal polynomials on $[-1, 1]$

Authors: A.B.J. Kuijlaars, K.T-R McLaughlin, W. Van Assche, M. Vanlessen

Subj-class: Classical Analysis; Complex Variables, MSC-class: 30E25; 35Q15; 42C05

39. math.CO/0111328

Title: Evaluations of some determinants of matrices related to the Pascal triangle

Authors: Christian Krattenthaler (Universität Wien)

Subj-class: Combinatorics; Linear Algebra; Number Theory MSC-class: 05A19 (Primary) 05A10 11C20 15A15 33C45 (Secondary)

40. hep-th/0111067

Title: Inverse Scattering, the Coupling Constant Spectrum, and the Riemann Hypothesis

Authors: N. N. Khuri

Subj-class: High Energy Physics - Theory; Mathematical Physics; Analysis of PDEs; Number Theory

41. math-ph/0111007

Title: Fredholm determinants, Jimbo-Miwa-Ueno tau-functions, and representation theory

Authors: Alexei Borodin, Percy Deift

Subj-class: Mathematical Physics; Classical Analysis; Representation Theory

42. math-ph/0111008

Title: Discrete gap probabilities and discrete Painleve equations

Authors: Alexei Borodin

Subj-class: Mathematical Physics; Classical Analysis; Combinatorics; Representation Theory

43. math.QA/0112009

Title: Hypergeometric Solutions of the q-KZ Equation at Level Zero

Authors: Vitaly Tarasov

Subj-class: Quantum Algebra

Journal-ref: Czech. J. Phys. 50 (2000) no.1, 193–200

44. math.QA/0112035

Title: BC_n-symmetric polynomials

Authors: Eric M. Rains

Subj-class: Quantum Algebra; Combinatorics

45. math.QA/0112127

Title: A differential ideal of symmetric polynomials spanned by Jack polynomials at $\beta = -(r-1)/(k+1)$

Authors: B.Feigin, M.Jimbo, T.Miwa, E.Mukhin

Subj-class: Quantum Algebra; Combinatorics

46. math.NT/0112137

Title: Trigonometric Expansions of Theta Functions

Authors: A. Raouf Chouikha

Subj-class: Number Theory; Classical Analysis, MSC-class: Primary: 33E05; Secondary: 33E20, 34A20

47. math.DS/0112156

Title: An estimate of the number of zeros of abelian integrals for special hamiltonians of arbitrary degree

Authors: A.A.Glutsyuk, Yu.S.Ilyashenko

Subj-class: Dynamical Systems; Complex Variables; MSC-class: 34C, 37G

48. math.CA/0112179

Title: The Heun equation and the Calogero-Moser-Sutherland system II: the perturbation and the algebraic solution

Authors: Kouichi Takemura

Subj-class: Classical Analysis; Spectral Theory; Mathematical Physics; Exactly Solvable and Integrable Systems, MSC-class: 33E15; 81Q10

49. math.CO/0112194

Title: Free martingale polynomials

Authors: Michael Anshelevich

Subj-class: Combinatorics; Classical Analysis; Operator Algebras; Probability Theory, MSC-class: 46L54; 05A40

50. math.NT/0112196

Title: The Highest-Lowest Zero and other Applications of Positivity

Authors: Stephen D. Miller

Subj-class: Number Theory; Representation Theory (To appear in the Duke Math. Journal).

51. cond-mat/0112386

Title: q-Random Matrix Ensembles

Authors: K.A. Muttalib, Y. Chen, M.E.H. Ismail

Subj-class: Disordered Systems and Neural Networks; Statistical Mechanics; Mathematical Physics

Journal-ref: Symbolic Computation, Number Theory, Special Functions, Physics and Combinatorics; Developments in Mathematics, vol 4, Eds. F.G. Garvan and M.E.H. Ismail (Kluwer, 2001)

52. math-ph/0112008

Title: Sum Rules for Jacobi Matrices and Their Applications to Spectral Theory

Authors: Rowan Killip, Barry Simon

Subj-class: Mathematical Physics; Classical Analysis, MSC-class: 34L05, 42C05, 47B36, 81Q10

53. math-ph/0112012

Title: Integrals of monomials over the orthogonal group

Authors: Thomas Gorin

Subj-class: Mathematical Physics

54. math-ph/0112014

Title: Some Diophantine relations involving circular functions of rational angles

Authors: F.Calogero, A.M.Perelomov

Subj-class: Mathematical Physics

Journal-ref: Linear Algebra and Applications 25, 91-94 (1979)

55. math-ph/0112020

Title: A fractional generalization of the Riccati equation

Authors: A.L. Madueño, H. Rosu, J. Socorro

Subj-class: Mathematical Physics

56. math-ph/0112021

Title: A remark on the matrix Airy function

Authors: A.M.Perelomov

Subj-class: Mathematical Physics

Journal-ref: Theoretical and Mathematical Physics, 123, 671-672 (2000)

57. math-ph/0112027

Title: Lieb-Thirring Inequalities for Jacobi Matrices

Authors: Dirk Hundertmark, Barry Simon

Subj-class: Mathematical Physics

58. math-ph/0112028

Title: Subalgebras of gc_N and Jacobi polynomials

Authors: Alberto De Sole, Victor G. Kac

Subj-class: Mathematical Physics

59. math-ph/0112030

Title: Trigonometry of 'complex Hermitian' type homogeneous symmetric spaces

Authors: Ramon Ortega, Mariano Santander

Subj-class: Mathematical Physics

60. math-ph/0112050

Title: Heat kernel-zeta function relationship coming from the classical moment problem

Authors: M. Tierz, E.Elizalde

Subj-class: Mathematical Physics; Chaotic Dynamics

61. nlin.SI/0112043

Title: Generating Function Associated with the Rational Solutions of the Painlevé II Equation Authors: Katsunori Iwasaki, Kenji Kajiwara, Toshiya Nakamura

Subj-class: Exactly Solvable and Integrable Systems

62. nlin.SI/0112045

Title: q-Painlevé systems arising from q-KP hierarchy Authors: Kenji Kajiwara, Masatoshi Noumi, Yasuhiko Yamada

Subj-class: Exactly Solvable and Integrable Systems

63. math-ph/0112007

Title: Lie Point Symmetries and Commuting Flows for Equations on Lattices

Authors: D. Levi, P. Winternitz

Subj-class: Mathematical Physics; Group Theory; Exactly Solvable and Integrable Systems

64. math.NT/0201109

Title: The moment zeta function and applications

Authors: Igor Rivin

Subj-class: Number Theory; Clasical Analysis

65. math.RT/0110318

Title: Asymptotic representation theory and Riemann-Hilbert problem

Author: Alexei Borodin

Subj-class: Representation Theory; Clasical Analysis; Combinatorics; Mathematical Physicis

66. math.CA/0201061

Title: A weak-type orthogonality principle

Authors: Jose Barrionuevo, Michael T. Lacey

Subj-class: Clasical Analysis

67. math.CA/0104260

Title: Integral Transform and Segal-Bargmann Representation Associated to q-Charlier Polynomials.

Authors: Nobuhiro Asai.

Subj-class: Clasical Analysis; Representation Theory

68. math.CO/0201140

Title: On the Eulerian Polynomials of Type D

Authors: Chak-On Chow

Subj-class: Combinatorics

69. math.CO/0201136

Title: Restricted 132-Involutions and Chebyshev Polynomials

Authors: O. Guibert, T. Mansour

Subj-class: Combinatorics

Problems and Solutions

Thus far 22 problems have been submitted, seven of which have been solved in previous issues. Still unsolved are Problems #3, 5, 8, 9, 11, 12, 13, 15, 17, 18, 19, 20, 21 and 22. This time no new problems have been submitted.

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

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

(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 $p \ge 1$.

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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20. Question about Elliot's formula Generalization of Legendre's identity for complete elliptic integrals

Let E, K be the complete elliptic integrals. Then

$$K'E + KE' - KK' = \pi/2 \qquad (*)$$

This is the special case $p = r = -a+1/2$, $q = c+a-3/2$ in Elliott's identity (see Erdelyi e.a., Higher Transcendental Functions, Vol. 1, p. 85):

$$\begin{aligned} &F(p+\tfrac12,-r-\tfrac12,1+p+q;z)F(-p+\tfrac12,r+\tfrac12;1+q+r;1-z) \\ &+F(p+\tfrac12,-r+\tfrac12,1+p+q;z)F(-p-\tfrac12,r+\tfrac12;1+q+r;1-z) \\ &-F(p+\tfrac12,-r+\tfrac12,1+p+q;z)F(-p+\tfrac12,r+\tfrac12;1+q+r;1-z) \\ &= \frac{\Gamma(p+q+1)\Gamma(q+r+1)}{\Gamma(p+q+r+\frac32)\Gamma(q+\frac12)} \qquad (**) \end{aligned}$$

Question 1. Is there a counterpart of Legendre's identity (*) for incomplete elliptic integrals?

Question 2. The Elliott identity (**) provides a generalization of the identity (*) to hypergeometric functions. The only handbook where I have seen this identity is Bateman vol. I. Has Elliott's identity been used or mentioned elsewhere in papers/books?

Question 3. Are there generalizations of the Elliott identity (**) to the ${}_pF_q$ case or to other generalizations of hypergeometric functions?

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21. Question on an exact solvable Schrödinger equation

What are all the Schrödinger equations that have exact solutions expressible in terms of the Kampé de Fériet function?

(Submitted on June 3, 1999)

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22. Question about Kampé de Fériet series

How to prove the following reduction identities for the Kampé de Fériet series:

$$F^{1:1;3}_{1:0;2}\left(\begin{matrix}2\\5/2\end{matrix}\middle|\begin{matrix}1\\-\end{matrix}\middle|\begin{matrix}1,1,1\\2,2\end{matrix}\middle|x,x\right) = {}_2F_1\left(\begin{matrix}1,1\\3/2\end{matrix}\middle|x\right){}_3F_2\left(\begin{matrix}1,1,1\\3/2,2\end{matrix}\middle|x\right), \tag{2}$$

$$F^{2:1;3}_{2:0;2}\left(\begin{matrix}2,2\\5/2,3\end{matrix}\middle|\begin{matrix}1\\-\end{matrix}\middle|\begin{matrix}1,1,1\\2,2\end{matrix}\middle|x,x\right) = \left[{}_3F_2\left(\begin{matrix}1,1,1\\3/2,2\end{matrix}\middle|x\right)\right]^2, \tag{3}$$

$$F^{2:1;2}_{2:0;1}\left(\begin{matrix}2,2\\3,3\end{matrix}\middle|\begin{matrix}1\\-\end{matrix}\middle|\begin{matrix}1,1\\2\end{matrix}\middle|1,1\right) = 4\,{}_4F_3\left(\begin{matrix}1,1,1,1\\2,2,2\end{matrix}\middle|1\right), \tag{4}$$

$$F^{3:1;2}_{3:0;1}\left(\begin{matrix}2,2,2\\3,3,3\end{matrix}\middle|\begin{matrix}1\\-\end{matrix}\middle|\begin{matrix}1,1\\2\end{matrix}\middle|1,1\right) = 2\,{}_5F_4\left(\begin{matrix}1,1,1,1,1\\2,2,2,2\end{matrix}\middle|1\right)? \tag{5}$$

Is it possible to generalize them?

Ernst Davidovich Krupnikov
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Miscellaneous

1. CAOP flies again

CAOP is a package for calculating formulas by Maple for orthogonal polynomials belonging to the Askey scheme. It was developed by Rene Swarttouw in 1996 as one of the deliverables in a temporary project sponsored by RIACA. See OP-SF NET, 3.4 (1996), Topic 12. For some time this has worked well, but afterwards CAOP could no longer be made active on the web site where it resided.

Recently CAOP has revived on the web page

`http://amstel.wins.uva.nl:7090/CAOP/`

It is now maintained by Tom Koornwinder, in cooperation with Rene Swarttouw and Wolfram Koepf. Many thanks to Andre Heck, who provided technical assistance.

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

2. Wolfram Research's Mathematical Functions

Dear Colleagues, Let me invite you to visit the new version of our site with 37000 formulas:

`http://functions.wolfram.com`

See also the modified

`http://mathworld.wolfram.com`

(which has returned).

Oleg Marichev
(oleg@wolfram.com)

3. History of Approximation Theory Homepage

This item, which appeared in AT-NET BULLETIN NO. 108, is included at the suggestion of Tom Koornwinder. For AT-NET Bulletin, see the WWW home-page:

`http://www.uni-giessen.de/www-Numerische-Mathematik/at-net`

History of Approximation Theory Homepage

We wish to announce the beginnings of a homepage devoted to the History of Approximation Theory (HAT). It is to be found at:

`http://www.math.technion.ac.il/hat/`

or at its mirror site:

`http://www.cs.wisc.edu/~deboor/HAT/`

We welcome any and all suggestions, comments, help, support and criticism.

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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 150 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/`

which 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; Preprint Servers and Links to WWW pages of interest to members. 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 *Newsletter* is a publication of the Activity Group. It appears three times a year and is mailed by SIAM. Back issues are accessible at:

`http://www.mathematik.uni-kassel.de/~koepf/siam.html`

and

`ftp://euler.us.es/pub/newsletter`

To receive the *Newsletter*, you must be a member of SIAM and of the Activity Group. SIAM has several categories of membership, including low-cost categories for students and residents of developing countries. For current information on SIAM and

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http://www.siam.org/membership/outreachmem.htm

The Activity Group also sponsors an electronic news net, called the OP-SF Net, which is transmitted periodically by SIAM. It is provided as a free public service; membership in SIAM is not required. The OP-SF Net Editor is Martin Muldoon (muldoon@yorku.ca). The Net provides fast turnaround compared to the *Newsletter*. To receive the Net, send your name and email address to poly-request@siam.org. To contribute a news item to the Net, send email to poly@siam.org with a copy to the OP-SF Net Editor. Please note that submissions to the Net are automatically considered for the *Newsletter*, and vice versa, unless the contributor requests otherwise. Back issues can be obtained at the WWW addresses:

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

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

http://math.nist.gov/opsfnet/archive

Finally, the Activity Group operates an email discussion group, called OP-SF Talk. To subscribe, send the email message

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to listproc@nist.gov . To contribute an item to the discussion, send email to opsftalk@nist.gov . The archive of all messages is accessible at:

http://math.nist.gov/opsftalk/archive

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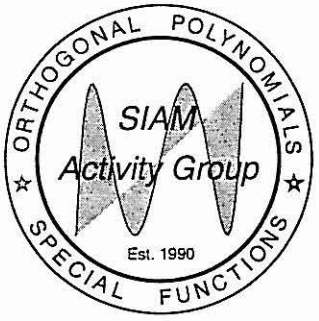
preferably by e-mail, and in LaTeX format. Other formats are also acceptable and can be submitted by e-mail, regular mail or fax.

Deadline for submissions to be included in the June issue 2002 is May 15, 2002.



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