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Topics:
1. Announcement: Nominations for George Pólya Prize in Mathematics 
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4. Preprints in arXiv.org 
5. Submitting contributions to OP–SF NET and SIAM–OPSF (OP–SF Talk) 
6. Thought of the Month by Lucy Joan Slater

Calendar of Events:

June 7–11, 2021 
33rd International Colloquium on Group Theoretical Methods in Physics (Group33) 
Cotonou, Benin 
http://www.cipma.net/group33–cotonou–benin

June 20–26, 2021 
8th European Congress of Mathematics (8ECM) 
Mini-symposium on Orthogonal Polynomials and Special Functions 
Organized by Paco Marcellán, Juan J. Moreno–Balcázar and Galina Filipuk, 
Portorož, Slovenia—Now virtual due to coronavirus pandemic. 
https://www.8ecm.si/minisymposia

July 19–24, 2021 
Mathematical Congress of the Americas (MCA 2021) 
Special Session on Special Functions and Orthogonal Polynomials 
Organized by Diego Dominici, Luis E. Garza, Jan Felipe van Diejen 
Buenos Aires, Argentina—Now virtual due to coronavirus pandemic. 
http://www.mca2021.org/en
January 10–14, 2022—Updated new date due to coronavirus pandemic.
9th International Conference on Computational Methods and Function Theory (CMFT 2021)
Federico Santa Maria Technical University, Valparaíso, Chile
http://cmft2021.inf.utfsm.cl/

August 2022—Updated new date due to coronavirus pandemic.
OPSF Summer School 2021
Radboud University, Nijmegen, The Netherlands
https://www.ru.nl/radboudsummerschool/courses/2021/opsfa-summer-school/

Summer 2022—Tentative new date due to coronavirus pandemic.
Functional Analysis, Approximation Theory and Numerical Analysis (FAATNA)
Matera, Italy
http://web.unibas.it/faatna20/

Summer, 2022—Tentative new dates due to coronavirus pandemic.
OPSFA–16
Centre de Recherches Mathématiques, Montreal, Canada

Topic #1  OP – SF Net 28.3  May 15, 2021

From: Walter Van Assche (walter.vanassche@kuleuven.be)
Subject: Announcement: Nominations for George Pólya Prize in Mathematics

The George Pólya Prize in Mathematics is awarded every four years for a significant contribution, as evidenced by a refereed publication, in an area of mathematics of interest to George Pólya not covered by the George Pólya Prize in Applied Combinatorics or the George Pólya Prize for Mathematical Exposition. Such areas may include approximation theory, complex analysis, number theory, orthogonal polynomials, probability theory, and mathematical discovery and learning. The prize is broadly intended to recognize specific recent work. The deadline for submission of nominations (that must include "two or three letters of support from experts") is October 15, 2021. More information and submission of nominations can be found at https://www.siam.org/prizes-recognition/major-prizes-lectures/detail/george-polya-prize-for-mathematics

Topic #2  OP – SF Net 28.3  May 15, 2021

From: Howard Cohl (howard.cohl@nist.gov)
Subject: Announcement: Request for Askey PDF's

If you have a PDF or image of a paper, correspondence or note by by Dick Askey, I would request that you contact me and send me those documents. In collaboration with the expert in-house staff bibliographer at Celebratio Mathematica, they are assembling a full bibliography of Dick’s works in connection with the Liber Amicorum for Dick Askey. These PDFs/images will be invaluable for our search and publication. If you perhaps have some especially rare or hard to find copy of one of Dick’s papers, we would gratefully appreciate that.

Topic #3  OP – SF Net 28.3  May 15, 2021

From: Gradimir V. Milovanovic (gv@mi.sanu.ac.rs)
Subject: Special Issue on: Orthogonal Polynomials, Special Functions and Applications
The journal Axioms will publish a special issue entitled:
*Orthogonal Polynomials, Special Functions and Applications.*

The guest editor for this special issue is Gradimir V. Milovanović.

This Special Issue of Axioms is devoted to various aspects of the theory of orthogonality in real or complex spaces with respect to the standard inner product (classical and strongly nonclassical cases) and moment functionals, including one-dimensional and multidimensional cases. Contributions considering the development and application of special functions, as well as problems in which special functions play a significant role, are welcome. Particularly interesting are theories and applications in which both orthogonality and special functions are represented. Consideration of problems in which special functions play a significant role, as well as applications of orthogonal polynomials in approximation theory in the broadest sense, including quadrature formulas and integral equations, will be particularly appreciated. Furthermore, applications and algorithms for solving open problems in mathematics, physics, and technical sciences are of interest.

Scope: Orthogonal polynomials on the real line; Orthogonal polynomials on the unit circle; Matrix orthogonal polynomials; Multiple orthogonal polynomials; Multivariate orthogonal polynomials; Sobolev orthogonal polynomials; Integrable systems; Random matrices; Quadrature and cubature formulas; Rational approximation; Approximation with splines; Wavelets.

The special issue title is:
*Orthogonal Polynomials, Special Functions and Applications.*

The deadline for manuscript submissions is: 1 December 2021.

The webpage for the special issue is can be found here: link.

To submit a manuscript to this special issue, go to this link.

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**Topic #4  OP – SF Net 28.3  May 15, 2021**

From: OP–SF Net Editors
Subject: Preprints in arXiv.org

The following preprints related to the fields of orthogonal polynomials and special functions were posted or cross–listed to one of the subcategories of arXiv.org during March and April 2021. This list has been separated into two categories.

**OP–SF Net Subscriber E–Prints**

http://arxiv.org/abs/2103.00337
Extreme Superposition: High–Order Fundamental Rogue Waves in the Far–Field Regime
Deniz Bilman, Peter D. Miller

http://arxiv.org/abs/2103.01652
Pascal triangle, Hoggatt matrices, and analogous constructions
Johann Cigler

http://arxiv.org/abs/2103.01725
Notes on solutions of KZ equations modulo $p^s$ and $p$–adic limit $s \to \infty$
Alexander Varchenko

Spatial asymptotics of Green’s function and applications
Sergey A. Denisov

http://arxiv.org/abs/2103.02291
The asymptotic expansion of a function due to L.L. Karasheva
R. B. Paris

http://arxiv.org/abs/2103.02321
Associated orthogonal polynomials of the first kind and Darboux transformations
Juan C. García–Ardila, Francisco Marcellán, Paul H. Villamil–Hernández

http://arxiv.org/abs/2103.03028
The alternating central extension of the $q$–Onsager algebra
Paul Terwilliger

http://arxiv.org/abs/2103.03349
Bound states of a quartic and sextic inverse–powerlaw potential for all angular momenta
A. D. Alhaidari, I. A. Assi, A. Mebirouk

http://arxiv.org/abs/2103.03601
The Strong Asymptotic Analysis of the first kind Orthogonal Trigonometric Polynomial
Huili Han, Hua Liu, Yufeng Wang

http://arxiv.org/abs/2103.03969
A determinant identity for moments of orthogonal polynomials that implies Uvarov’s formula for the
orthogonal polynomials of rationally related densities
C. Krattenthaler

http://arxiv.org/abs/2103.04151
On the $r$–Derangements of type B
István Mezo, Victor H. Moll, José L. Ramírez, Diego Villamizar

http://arxiv.org/abs/2103.04229
Painlevé IV, $\sigma$–Form and the Deformed Hermite Unitary Ensembles
Mengkun Zhu, Dan Wang, Yang Chen

http://arxiv.org/abs/2103.04231
Quantum interpolating ensemble: Average entropies and orthogonal polynomials
Lu Wei, Nicholas Witte

http://arxiv.org/abs/2103.04284
On the asymptotic of Wright functions of the second kind
Richard Paris, Armando Consiglio, Francesco Mainardi

Laguerre expansions on conic domains
Yuan Xu

http://arxiv.org/abs/2103.05696
Chebyshev Polynomials and Inequalities for Kleinian Groups
Hala Alaquad, Jianhua Gong, Gaven Martin

http://arxiv.org/abs/2103.05742
Remarks on Askey–Wilson polynomials and Meixner polynomials of the second kind
K. Castillo, D. Mbouna, J. Petronilho

http://arxiv.org/abs/2103.07816
Painlevé V for a Jacobi unitary ensemble with random singularities
Mengkun Zhu, Chuanzhong Li, Yang Chen

http://arxiv.org/abs/2103.07872
$\pi$–Formulae from Dual Series of the Dougall Theorem
Wenchang Chu

http://arxiv.org/abs/2103.08370
Compactness criteria via Laguerre and Hankel transformations
Á. P. Horváth

http://arxiv.org/abs/2103.09631
The rational Sklyanin algebra and the Wilson and para–Racah polynomials
Geoffroy Bergeron, Julien Gaboriaud, Luc Vinet, Alexei Zhedanov

http://arxiv.org/abs/2103.09653
Representations of integers as sums of four polygonal numbers and partial theta functions
Kathrin Bringmann, Min–Joo Jang, Ben Kane

http://arxiv.org/abs/2103.09681
Quantization of Calogero–Painlevé system and Multi–particle quantum Painlevé equations II–VI
Fatane Mobasheramini, Marco Bertola

http://arxiv.org/abs/2103.09748
On the Whitney extension problem for near isometries and beyond
Steven B. Damelin

http://arxiv.org/abs/2103.11229
The compact presentation for the alternating central extension of the $q$–Onsager algebra
Paul Terwilliger

http://arxiv.org/abs/2103.12852
A Bijective Proof of Richard Stanley's Observation that the sum of the cubes of the n–th row of Stern's Diatomic array equals 3 times 7 to the power n–1
Shalosh B. Ekhad, Doron Zeilberger

http://arxiv.org/abs/2103.12855
Automated Generation of Generating Functions Related to Generalized Stern’s Diatomic Arrays in the footsteps of Richard Stanley
Shalosh B. Ekhad, Doron Zeilberger

http://arxiv.org/abs/2103.13092
Equidistributions around special kinds of descents and excedances
Bin Han, Jianxi Mao, Jiang Zeng

http://arxiv.org/abs/2103.13312
Ratios of the Gauss hypergeometric functions with parameters shifted by integers: part I
Alexander Dyachenko, Dmitrii Karp

http://arxiv.org/abs/2103.13715
Multiple Orthogonal Polynomials and Random Walks
Amílcar Branquinho, Ana Foulquié-Moreno, Manuel Mañas, Carlos Álvarez-Fernández, Juan E. Fernández-Díaz

http://arxiv.org/abs/2103.13936

Fock Spaces with Nearest Neighbor Coupling
Michael Anshelevich, Jacob Mashburn

http://arxiv.org/abs/2103.14002

Ramanujan’s Beautiful Integrals
Bruce C. Berndt, Atul Dixit

http://arxiv.org/abs/2103.14296

Inverse scattering transforms for the sixth-order nonlinear Schrödinger equation with zero/nonzero boundary conditions: Bound-state soliton and rogue wave
Weiqi Peng, Yong Chen

http://arxiv.org/abs/2103.15176

Bounded cutoff window for the non-backtracking random walk on Ramanujan Graphs
Evita Nestoridi, Peter Sarnak

http://arxiv.org/abs/2103.16666

Bounds for an integral involving the modified Lommel function of the first kind
Robert E. Gaunt

http://arxiv.org/abs/2104.00710

Evaluation of Nonsymmetric Macdonald Superpolynomials at Special Points
Charles F. Dunkl

http://arxiv.org/abs/2104.00957

A note on some infinite sums of Hurwitz zeta functions
R. B. Paris

http://arxiv.org/abs/2104.01187

Bispectral dual Hahn polynomials with an arbitrary number of continuous parameters
Antonio J. Durán

http://arxiv.org/abs/2104.01349

New examples of Krall-Meixner and Krall-Hahn polynomials, with applications to the construction of exceptional Meixner and Laguerre polynomials
Antonio J. Durán

http://arxiv.org/abs/2104.01354

Exceptional Hahn and Jacobi polynomials with an arbitrary number of continuous parameters
Antonio J. Durán

http://arxiv.org/abs/2104.01415

Inhomogeneous spin $q$-Whittaker polynomials
Alexei Borodin, Sergei Korotkikh

http://arxiv.org/abs/2104.01430

A note on $\mathfrak{su}(2)$ models and the biorthogonality of generating functions of Krawtchouk polynomials
Luc Vinet, Alexei Zhedanov
http://arxiv.org/abs/2104.01599
Triplicate Dual Series of Dougall–Dixon Theorem
Xiaojing Chen, Wenchang Chu

http://arxiv.org/abs/2104.01665
Extremal Graphs for a Spectral Inequality on Edge–Disjoint Spanning Trees
Sebastian M. Cioabă, Anthony Ostuni, Davin Park, Sriya Potluri, Tanay Wakhare, Wiseley Wong

http://arxiv.org/abs/2104.01700
Uniform asymptotic expansions for Lommel, Anger–Weber and Struve functions
T. M. Dunster

http://arxiv.org/abs/2104.01731
Some Deep and Original Questions about the "critical exponents" of Generalized Ballot Sequences
Shalosh B. Ekhad, Doron Zeilberger

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Peter Dragnev, Ramon Orive, Edward B. Saff, Franck Wielonsky

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A. Swaminathan, Lateef Ahmad Wani

http://arxiv.org/abs/2104.06363
Two–parameter Identities for Divisor Sums in Algebraic Number Fields
Bruce C. Berndt, Martino Fassina, Sun Kim, Alexandru Zaharescu

http://arxiv.org/abs/2104.06568
A Summation of Series Involving Bessel Functions and Order Derivatives of Bessel Functions
Yilin Chen

http://arxiv.org/abs/2104.07942
Differential, Difference and Asymptotic Relations for Pollaczek–Jacobi Type Orthogonal Polynomials and Their Hankel Determinants
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The $m=2$ amplituhedron and the hypersimplex: signs, clusters, triangulations, Eulerian numbers
Matteo Parisi, Melissa Sherman–Bennett, Lauren Williams

http://arxiv.org/abs/2104.08516
Multiple Laguerre polynomials: Combinatorial model and Stieltjes moment representation
Alan D. Sokal
http://arxiv.org/abs/2104.08596
The Bateman Functions Revisited After 90 Years – A Survey of Old and New Results
Alexander Apelblat, Armando Consiglio, Francesco Mainardi

http://arxiv.org/abs/2104.08740
On the $\Phi$-Stability and Related Conjectures
Lei Yu

http://arxiv.org/abs/2104.08855
Sums of products of Bessel functions and order derivatives of Bessel functions
Yilin Chen

http://arxiv.org/abs/2104.11198
A Graph Decomposition motivated by the Geometry of Randomized Rounding
Stefan Steinerberger

http://arxiv.org/abs/2104.12241
On the Efficient Evaluation of the Azimuthal Fourier Components of the Green’s Function for Helmholtz’s Equation in Cylindrical Coordinates
James Garritano, Yuval Kluger, Vladimir Rokhlin, Kirill Serkh

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Uniform asymptotic expansions for the Whittaker functions $M_{\kappa,\mu}(z)$ and $W_{\kappa,\mu}(z)$ with $\mu$ large
T. M. Dunster

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Convergence of two–point Padé approximants to piecewise holomorphic functions
M.L. Yattselev

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Stokes manifolds and cluster algebras
Marco Bertola, Sofia Tarricone

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André Beaudoin, Geoffroy Bergeron, Antoine Brillant, Julien Gaboriaud, Luc Vinet, Alexei Zhedanov

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A universal identity for theta functions of degree eight and applications
Zhi–Guo Liu

http://arxiv.org/abs/2104.14822
Matrix–valued orthogonal polynomials related to hexagon tilings
Alan Groot, Arno B.J. Kuijlaars

Other Relevant OP–SF E–Prints

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V. Prokofev, A. Zabrodin
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Yuri Luchko

Stability and conservation properties of Hermite–based approximations of the Vlasov–Poisson system
Daniele Funaro, Gianmarco Manzini

At least two of $\zeta(5), \zeta(7), \ldots, \zeta(35)$ are irrational
Li Lai, Li Zhou

Poncelet polygons and monotonicity of rotation numbers: iso–periodic confocal pencils of conics, hidden traps, and marvels
Vladimir Dragović, Milena Radnović

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Gi–Sang Cheon, Tamás Forgács, Hana Kim, Khang Tran

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Karen Yagdjian, Anahit Galstian

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Ali Eghbali, Tayebe Parvizi, Adel Rezaei–Aghdam
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http://arxiv.org/abs/2103.02223

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Jeet Kumar Gaur

http://arxiv.org/abs/2103.02353

Extension of Laguerre polynomials with negative arguments
T. N. Shorey, Sneh Bala Sinha

http://arxiv.org/abs/2103.02423

RBF approximation of three dimensional PDEs using Tensor Krylov subspace methods
M. El Guide, K. Jbilou, A. Ratnani


Multi–cell NOMA: Coherent Reconfigurable Intelligent Surfaces Model With Stochastic Geometry
Chao Zhang, Wenqiang Yi, Yuanwei Liu, Qiang Wang

http://arxiv.org/abs/2103.02545

Non–intersecting Brownian bridges in the flat–to–flat geometry
Jacek Grela, Satya N. Majumdar, Gregory Schehr

http://arxiv.org/abs/2103.02697

New Coalescences for the Painlevé Equations
V. C. C. Alves

http://arxiv.org/abs/2103.02951

A parametric congruence arising from Orr’s identity
Chen Wang, Zhi–Wei Sun


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Emanuel Milman


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An unfitted radial basis function generated finite difference method applied to thoracic diaphragm simulations
Igor Tominiec, Pierre–Frederic Villard, Elisabeth Larsson, Victor Bayona, Nicola Cacciani

Analytic Combinatorics of Composition schemes and phase transitions with mixed Poisson distributions
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Estimates for Green’s functions of elliptic equations in non–divergence form with continuous coefficients
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On a Conjecture Concerning the Approximates of Complete Elliptic Integral of the First Kind by Inverse Hyperbolic Tangent
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Super–Macdonald polynomials: Orthogonality and Hilbert space interpretation
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A $C^1$–conforming Petrov–Galerkin method for convection–diffusion equations and superconvergence analysis over rectangular meshes
Waixiang Cao, Lueling Jia, Zhimin Zhang

Exact Reconstruction of Extended Exponential Sums using Rational Approximation of their Fourier Coefficients
Nadiia Derevianko, Gerlind Plonka

Euler’s Reflection Formula, Infinite Product Formulas, and the Correspondence Principle of Quantum Mechanics
Tamar Friedmann, Quincy Webb

Variance of the number of zeros of dependent Gaussian trigonometric polynomials
Louis Gass

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Robert Frontczak, Taras Goy
Weighted $L^2$–Norms of Gegenbauer polynomials
Johann S. Brauchart, Peter J. Grabner

http://arxiv.org/abs/2103.08367
Closed–form expressions, generating function and Mehler–Heine type formula for the associated Meixner polynomials and some applications
Khalid Ahbli

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Jae–Hun Jung, Daniel Olmos–Liceaga

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$H(\text{curl}^2)$–conforming quadrilateral spectral element method for quad–curl problems
Lixiu Wang, Weikun Shan, Huiyuan Li, Zhimin Zhang

http://arxiv.org/abs/2103.08848
An asymptotic preserving scheme for Lévy–Fokker–Planck equation with fractional diffusion limit
Wuzhe Xu, Li Wang

A Whipple $\gamma F_6$ formula revisited
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http://arxiv.org/abs/2103.08899
Relaxation models for scalar traffic networks and zero relaxation limit
Raul Borsche, Axel Klar

http://arxiv.org/abs/2103.08989
A boundary–value problem for a mixed type equation involving hyper–Bessel fractional differential operator and Hilfer’s double order fractional derivative
E. Karimov, M. Ruzhansky, B. Toshtemirov

http://arxiv.org/abs/2103.09280
Value–Gradient based Formulation of Optimal Control Problem and Machine Learning Algorithm
Alain Bensoussan, Jiayue Han, Sheung Chi Phillip Yam, Xiang Zhou

http://arxiv.org/abs/2103.09418
On some results of Agelas concerning the GRH and of Vassilev–Missana concerning the prime zeta function
Richard P. Brent

http://arxiv.org/abs/2103.09654
Ramanujan in Computing Technology
V. N. Krishnachandran
http://arxiv.org/abs/2103.09799
Fibonacci–Zeta infinite series associated with the polygamma functions
Kunle Adegoke, Sourangshu Ghosh

http://arxiv.org/abs/2103.09847
Infinite–Horizon Offline Reinforcement Learning with Linear Function Approximation: Curse of Dimensionality and Algorithm
Lin Chen, Bruno Scherrer, Peter L. Bartlett

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Integral formulas for Painlevé–2 transcendent
O. M. Kiselev

http://arxiv.org/abs/2103.09909
Stochastic Processes and Statistical Mechanics
Themis Matsoukas

http://arxiv.org/abs/2103.09980
Limit theorems for moment processes of beta Dyson’s Brownian motions and beta Laguerre processes
Fumihiko Nakano, Hoang Dung Trinh, Khanh Duy Trinh

http://arxiv.org/abs/2103.10009
Categorification of DAHA and Macdonald polynomials
Syu Kato, Anton Khoroshkin, Ievgen Makedonskyi

http://arxiv.org/abs/2103.10099
Integrable extensions of classical elliptic integrable systems
M. Olshanetsky

http://arxiv.org/abs/2103.10132
An efficient algorithm to compute the exponential of skew–Hermitian matrices for the time integration of the Schrödinger equation
Philipp Bader, Sergio Blanes, Fernando Casas, Muaz Seydaoğlu

http://arxiv.org/abs/2103.10138
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Rodney Fox, Frédérique Laurent

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Jorge J. Betancor, Alejandro J. Castro, Marta De León–Contreras

Topic #5   _______  OP – SF Net 28.3  _______  May 15, 2021

From: OP–SF Net Editors
Subject: Submitting contributions to OP–SF NET and SIAM–OPSF (OP–SF Talk)

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howard.cohl@nist.gov, or spost@hawaii.edu.

Contributions to OP–SF NET 28.4 should be sent by July 1, 2021.

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  Luc Vinet, Vice Chair
  Andrei Martínez–Finkelshtein, Program Director
  Teresa E. Pérez, Secretary and OP–SF Talk moderator

The appointed officers are:
  Howard Cohl, OP–SF NET co–editor
  Sarah Post, OP–SF NET co–editor
  Diego Dominici, OP–SF Talk moderator
  Bonita Saunders, Webmaster and OP–SF Talk moderator
“In his work *Arithmetica Infinitorum* (1655), the Oxford professor John Wallis (1616–1703) first used the term ‘hypergeometric’ (from the Greek \( \text{hyper} \), above or beyond) to denote any series which was beyond the ordinary geometric series

\[
1 + x + x^2 + x^3 + ...
\]

In particular, he studies the series

\[
1 + a + a(a + 1) + a(a + 1)(a + 2) + ....
\]