

**HARI MOHAN SRIVASTAVA – A MASTER IN SPECIAL
FUNCTIONS, REAL AND COMPLEX ANALYSIS AND
NUMBER THEORY**

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The present issue of *Publications de l'Institut Mathématique* is dedicated to Professor **Hari Mohan Srivastava** on his 80th birthday anniversary and his outstanding work in Special Functions, Real and Complex Analysis and Number Theory.



Professor Hari Mohan Srivastava (2020)

Hari Mohan Srivastava was born on 05 July 1940 in Karon (District Ballia) in the Province of Uttar Pradesh in India. He began his university-level teaching career right after having received his M.Sc. degree in Mathematics in the year

1959 at the age of 19 years. He earned his Ph.D. degree in 1965 while he was a full-time member of the teaching faculty at the Jai Narain Vyas University of Jodhpur in India (since 1963). Currently, Professor Srivastava holds the position of Professor Emeritus in the Department of Mathematics and Statistics at the University of Victoria in Canada, having joined the faculty there in 1969. Professor Srivastava has held (and continues to hold) numerous Visiting, Honorary and Chair Professorships at many universities and research institutes in different parts of the world. Having received several D.Sc. (*honoris causa*) degrees as well as honorary memberships and fellowships of many scientific academies and scientific societies around the world, he is also actively associated editorially with numerous international scientific research journals as an Honorary or Advisory Editor or as an Editorial Board Member. He has also edited (and is currently editing) many Special Issues of scientific research journals as the Lead or Joint Guest Editor, including (for example) the MDPI journals, *Axioms*, *Mathematics*, and *Symmetry*, the Elsevier journals, *Journal of Computational and Applied Mathematics*, *Applied Mathematics and Computation*, *Chaos, Solitons & Fractals*, *Alexandria Engineering Journal*, and *Journal of King Saud University – Science*, the Wiley journal, *Mathematical Methods in the Applied Sciences*, the Springer journals, *Advances in Difference Equations*, *Journal of Inequalities and Applications*, *Fixed Point Theory and Applications*, and *Boundary Value Problems*, the American Institute of Physics journal, *Chaos: An Interdisciplinary Journal of Nonlinear Science*, the American Institute of Mathematical Sciences journal, *AIMS Mathematics*, the Hindawi journals, *Advances in Mathematical Physics*, *International Journal of Mathematics and Mathematical Sciences*, and *Abstract and Applied Analysis*, the De Gruyter (now the Tbilisi Centre for Mathematical Sciences) journal, *Tbilisi Mathematical Journal*, the Yokohama Publisher journal, *Journal of Nonlinear and Convex Analysis*, the University of Nis journal, *Filomat*, the Ministry of Communications and High Technologies (Republic of Azerbaijan) journal, *Applied and Computational Mathematics: An International Journal*, and so on. He is a Clarivate Analytics [Thomson Reuters] (Web of Science) Highly-Cited Researcher.

Professor Srivastava's research interests include several areas of pure and applied mathematical sciences, such as (for example) real and complex analysis, fractional calculus and its applications, integral equations and transforms, higher transcendental functions and their applications, q -series and q -polynomials, analytic number theory, analytic and geometric inequalities, probability and statistics, and inventory modeling and optimization. He has published 36 books, monographs, and edited volumes, 36 book (and encyclopedia) chapters, 48 papers in international conference proceedings, and more than 1350 peer-reviewed international scientific research journal articles, as well as Forewords and Prefaces to many books and journals.

Further details about Professor Srivastava's professional achievements and scholarly accomplishments, as well as honors, awards and distinctions, can be found at the following Web Site: <http://www.math.uvic.ca/~harimsri/>.

This issue of *Publications de l'Institut Mathématique* contains fourteen papers, which appear in alphabetical order with respect to the last name of the first-named author.

Bisht, Singh, Rakočević, and Fisher extend the scope of the study of fixed point theorems of power quasi contractions from the class of continuous mappings to a wider class of mappings which include discontinuous mappings. Also they provide a new answer to the open problem posed by Rhoades (1988). Čanak and Albijanić consider an important class of complex differential equations of Vekua type, the so-called fundamentally finite integrable equations. They show that all major problems of the Vekua equation theories, including boundary value problems, can be interpreted and solved using the principle of inversion. In his paper, Chaudhary considers a family of theta-function identities based upon R_α , R_β and R_m -functions related to Jacobi's triple-product identity, and also provides answer for a recent open problem of H. M. Srivastava, R. Srivastava, M. P. Chaudhary, and S. Uddin. Dar and Paris obtain a (p, ν) -extension of Srivastava's triple hypergeometric function $H_C(\cdot)$ by employing the extended Beta function $B_{p, \nu}(x, y)$, introduced by R. K. Parmar, P. Chopra, and R. B. Paris (2017). The main results include several integral representations, the Mellin transform, a differential formula, recursion formulas, as well as a bounded inequality. By using q -analogue of the Bessel function, El-Deeb and El-Matary introduce new subclasses of star-like functions with respect to symmetric and conjugate points and obtain some useful properties of these subclasses. In his paper Ernst continue the study of single and multiple q -Eulerian integrals in the spirit of Exton, Driver, Johnston, Pandey, Saran and Erdélyi, obtaining summation theorems as special cases of multiple q -Eulerian integrals, as well as q -analogues of multiple integral formulas for q -Kampé de Fériet functions. Ganesamoorthy and Jayanthi give further results on the outer connected geodetic number of a graph As an application, the proposed method can be extended to the identification of beacon vertices towards the network fault-tolerant in wireless local access network communication. Haseeb and Prasad characterize ϵ -Kenmotsu manifolds admitting $*$ -conformal η -Ricci solitons and give an example of 7-dimension ϵ -Kenmotsu manifold. By using trigonometric identities and some properties of the Bernoulli polynomials, Kilar and Simsek prove the formula for the sums of powers of positive integers, given by Faulhaber in 1631. Using trigonometric functions identities and generating functions for some well-known special numbers and polynomials, the authors obtain several novel formulas and relations, including alternating sums of powers of positive integers, Bernoulli and Euler polynomials and numbers, as well as Fubini, Stirling and tangent numbers. Milovanović, Mir and Ahmad establish some lower bound estimates for the maximum modulus of the polar derivative of a polynomial on the unit disk under the assumption that the polynomial has all zeros in another disk. The obtained results sharpen as well as generalize some estimates of Turán's-type that relate the uniform-norm of the polar derivative and the polynomial. Qi and Lim derive two explicit formulas for two sequences of special values of the Bell polynomials of the second kind in terms of associate Stirling numbers of the second kind. Also, they give an explicit formula for associate Stirling numbers of the second kind in

terms of the Stirling numbers of the second kind, and finally present two explicit formulas for sequences of special values of the Bell polynomials of the second kind in terms of the Stirling numbers of the second kind. Srivatsa Kumar and Sharath deal with Somos's theta function identities. They prove few theta-function identities of level 6 discovered by Somos by using modular equations of degree 3 given by Ramanujan, and also extract some interesting combinatorial interpretations of colored partitions. Finally, Verma, Khurana, and Kumar introduce a new class of harmonic univalent functions by using a generalized differential operator and investigate some of its geometric properties, and Yalçın, Atshan, and Hassan study the Taylor–Maclaurin initial coefficient estimates problem for some classes of bi-univalent functions.

It is a privilege and an honour to have edited these papers dedicated to an eminent mathematician and friend – Professor Hari Mohan Srivastava.

Finally, I wish to express my deepest appreciation to all the mathematicians from the international mathematical community, who contributed their papers for publication in this issue dedicated to Hari Mohan Srivastava, as well as to the referees for their careful reading of the manuscripts.

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