

17th International Symposium on
Geometric Function Theory and Applications

Alba Iulia, 3 - 6 September, 2026

ROMANIA

Edited by:

- Daniel Breaz (“1 Decembrie 1918” University of Alba Iulia)
- Ioan-Lucian Popa (“1 Decembrie 1918” University of Alba Iulia)

Contents

Scientific Committee	1
Organizing Committee	3
Technical Program at a Glance	5
Technical Program	7
Abstracts	13
Differential, integral, convolution operators and certain classes of functions (<i>Grigore Ștefan Sălăgean</i>)	13
Certain Subclasses of Analytic Functions Defined by Srivastava-Owa Op- erators and Poisson Distributions (<i>Maslina Darus, Lee Chew Yee2</i>)	13
Extension of Convex Combination of Graham-Kohr Type (<i>Anamaria Paștiu</i>)	14
Coefficient Bounds for generalized κ -Fold Symmetric Bi-Univalent Classes (<i>Alin Florin Danciu</i>)	15
On some class of holomorphic mappings. Applications to non-linear re- solvents (<i>Mark Elin,</i>)	15
On differences of initial logarithmic coefficients of some classes of univalent functions (<i>Milutin Obradović,</i>)	16
Proof of Yamashita's Conjecture for a Class of Univalent Functions (<i>Teodor Bulboacă</i>)	16
Filtration Families in Geometric Function Theory and their Dynamics (<i>Fiana Jacobzon</i>)	17
Convolution Properties and Convex Combinations for a Class of Bounded Harmonic Mappings (<i>Fethiye Müge Sakar, Seher Melike Aydoğan, Asena Çetinkaya, Oya Mert Coşkun and İzzet Göksel</i>)	17
A unified approach to the generalized Fekete–Szegő functional in complex Banach spaces (<i>Mihai Aron</i>)	18
Argument Properties Associated with Fractional Derivatives of Analytic Functions (<i>Emel Yavuz</i>)	19
Advances in Bohr Phenomena for Harmonic Mappings and Special Func- tion Techniques (<i>Asena Çetinkaya, Omendra Mishra, Seher Melike Aydoğan</i>)	20
On the theorem of univalence on the boundary (<i>Adina Cristea</i>)	20

On the Theorem of Univalence of the Boundary (<i>Mihai Cristea</i>)	20
Contributions to the Study of Classes of Analytic Functions Defined by Subordination, Integral Operators, and Libera-Type Iterative Operators (<i>Andreea Cunțan, Daniel Valer Breaz</i>)	21
Tempered Exponential Dichotomy for Random Discrete-Time Systems and Lyapunov Characterizations (<i>Albescu Oana</i>)	21
Geometric-Analytic Criteria for Relay Protection: Differential Subordination, Quasiconformal Distortion, and Multivalent Network Functions (<i>Mihaela Aldea, Remus Dobra, Mircea Rîșteiu</i>)	22
The Fekete-Szegő Problem for a Subclasses of Bi-Univalent Functions Associated with Generalized Mersenne Polynomials (<i>Mihaela Cojocnean</i>)	22
Applications of Hadamard convolution in Function Spaces (<i>Anbhu Swaminathan</i>)	23
Transforming properties by using a Libera type integral operator (<i>Mugur Acu</i>)	23
The Inverse Operator: A Sălăgean-Type Differential Companion to $\mathcal{J}_c^\delta$ (<i>Khalifa Al Shaqsi,</i>)	24
Contributions to the Study of Classes of Analytic Functions Defined by Subordination, Integral Operators, and Libera-Type Iterative Operators (<i>Alina Alb Lupaș, Daria Lupaș</i>)	24
Results on the Classical Conjectures of Brannan, Sendov and Schmeisser (<i>Luminița-Ioana Cotîrlă</i>)	26
Univalent operators involving the Bessel function of the first kind (<i>Georgia Irina Oros</i>)	27
Convex Combinations of Graham-Kohr Type Extension Operators in $\mathbb{C}^n$ (<i>Eduard Ștefan Grigoriuc</i>)	27
Neighborhood of a Certain Family of Multivalent Functions with Negative Coefficients and Connections to the Lambert Series and Robin's (<i>Jamal Salah</i>)	28
Coefficient Problems for $(\varkappa)$ -Pseudo (q)-Bi-Convex Functions Associated with (q)-Bernoulli Polynomials (<i>Abdullah Alsoboh</i>)	29
Preserving some classes of meromorphic functions defined by an operator with convolution (<i>Elisabeta-Alina Totoi</i>)	29
Pre-Schwarzian norm estimates for type Janowski convex functions (<i>Ali Ebadian</i>)	30
Differential Subordinations Related to Bazilevič Type Functions associated with κ -Symmetric Points and q-Calculus Operator (<i>Ekram E. Ali, Nicoleta Breaz, Rabha M. El-Ashwah</i>)	30
Coefficient Estimates for q-Analogues of Quasi-Convex Function Classes via Generalized q-Janowski Parameters (<i>Shujaat Ali Shah, Summaiya Ayoub Shaikh</i>)	30

Author Index

31

Scientific Committee

Head of the Scientific Committee:

- Daniel Breaz (Romania)

Scientific Committee (in alphabetical order):

- Mugur Acu (Romania)
- Khalifa Al-Shaqsi (Oman)
- Seher Melike Aydoğan (Türkiye)
- Nicoleta Breaz (Romania)
- Teodor Bulboacă (Romania)
- Mert Çağlar (Türkiye)
- Luminița Ioana Cotîrlă (Romania)
- Maslina Darus (Malaysia)
- Emel Yavuz (Türkiye)
- Firas Ghanim Ahmed (United Arab Emirates)
- Virginia Kiryakova (Bulgaria)
- Sanford S. Miller (USA)
- Milutin Obradovic (Serbia)
- Shigeyoshi Owa (Japan)
- Ioan-Lucian Popa (Romania)
- Müge Devecioğlu Sakar (Türkiye)
- Grigore Ștefan Sălăgean (Romania)
- Hari M. Srivastava (Canada)
- Nikola Tuneski (R. Macedonia)

Organizing Committee

Head of the Organizing Committee:

- Daniel Breaz (Romania)

Organizing Committee:

- Mihaela Aldea (Romania)
- Luminița Ioana Cotîrlă (Romania)
- Maslina Darus (Malaysia)
- Emel Yavuz (Türkiye)
- Junichi Nishiwaki (Japan)
- Ioan-Lucian Popa (Romania)
- Tuğba Sarıcaoglu (Türkiye)

Technical Program at a Glance

September 3 15:00-16:00	Venue: Senat Hall	Registration
September 3 16:00-16:30	Opening Ceremony	
September 3 16:30-18:00	Plenary Session	
September 3 18:00-18:15	Coffee Break	
September 3 18:15-19:00	Short Communication Session	
September 3 19:00-21:00	Dinner (University Cafeteria)	
September 4 09:00-10:00	Breakfast (University Cafeteria)	
September 4 10:30-23:00	Excursion to Albac	
September 4 14:00-16:15	Plenary & Short Communication Sessions (Albac Conference room)	
September 5 09:00-10:00	Breakfast (University Cafeteria)	
September 5 10:00-11:30	Plenary Session	
September 5 11:30-11:45	Coffee Break	
September 5 11:45-13:00	Short Communication Sessions	
September 5 13:00-15:00	Lunch (University Cafeteria)	
September 5 15:00-16:30	Plenary Session	
September 5 16:30-16:45	Coffee Break	
September 5 16:45-18:00	Short Communication Session	
September 5 18:00-18:30	Closing Ceremony	
September 5 19:00-21:00	Dinner (University Cafeteria)	
September 6 09:00-10:00	Breakfast (University Cafeteria)	
September 6 10:00-21:00	Departure of participants	

Technical Program

September 3, 2026

16:00 - 16:30 Opening Session (Senate Hall, Apor Palace)

Opening Address

Prof. Dr. Daniel Valer Breaz

Rector of "1 Decembrie 1918" University of Alba Iulia

16:30-18:00 Plenary Sessions (Senat Hall) Chair: Daniel Valer Breaz

16:30-17:15 Differential, integral, convolution operators and certain classes
of functions
Grigore Ștefan Sălăgean

17:15-18:00 Certain Subclasses of Analytic Functions Defined by
Srivastava-Owa Operators and Poisson Distributions
Maslina Darus

18:00-18:15 Coffee Break

18:15-19:00 Short Communications (Senate Hall) Chair: Grigore Ștefan Sălăgean

18:15-18:30 Extension of Convex Combination of Graham-Kohr Type
Anamaria Paștiu

18:30-18:45 Coefficient Bounds for generalized κ -Fold Symmetric
Bi-Univalent Classes
Alin Florin Danciu

18:45-19:00 On some class of holomorphic mappings.
Applications to non-linear resolvents
Mark Elin

September 4, 2026

14:00-15:30 Plenary Session (Conference Room) Chair: Maslina Darus

14:00-14:45 On differences of initial logarithmic coefficients
of some classes of univalent functions
Milutin Obradović

14:45-15:30 Proof of Yamashita's Conjecture for a Class of
Univalent Functions
Teodor Bulboacă

15:30-16:15 Short Communications (Conference Room) Chair: Milutin Obradović

15:30-15:45 Filtration Families in Geometric Function Theory and their Dynamics
Fiana Jacobzon

15:45-16:00 AConvolution Properties and Convex Combinations for a Class
of Bounded Harmonic Mappings
Fethiye Müge Sakar

16:00-16:15 A unified approach to the generalized Fekete–Szegő functional
in complex Banach spaces
Mihai Aron

September 5, 2026

10:00-11:30 Plenary Sessions (Senat Hall) Chair: Teodor Bulboacă

- 10:00-10:45 Argument Properties Associated with Fractional Derivatives
of Analytic Functions
Emel Yavuz
- 10:45-11:30 Advances in Bohr Phenomena for Harmonic Mappings
and Special Function Techniques
Seher Melike Aydoğan

11:30-11:45 Coffee Break

11:45-13:00 Short Communications (Council Hall) Chair: Emel Yavuz

- 11:45-12:00 On the theorem of univalence on the boundary
Adina Cristea
- 12:00-12:15 On the Theorem of Univalence of the Boundary
Mihai Cristea
- 12:15-12:30 Contributions to the Study of Classes of Analytic Functions
Defined by Subordination, Integral Operators, and
Libera-Type Iterative Operators
Andreea Cunțan
- 12:30-12:45 Tempered Exponential Dichotomy for Random Discrete-Time
Systems and Lyapunov Characterizations
Albescu Oana
- 12:45-13:00 Geometric-Analytic Criteria for Relay Protection: Differential
Subordination, Quasiconformal Distortion and
Multivalent Network Functions
Mihaela Aldea

11:45-13:00 Short Communications (Senate Hall) Chair: Seher Melike Aydoğan

- 11:45-12:00 The Fekete-Szegő Problem for a Subclasses of Bi-Univalent
Functions Associated with Generalized Mersenne Polynomials
Mihaela Cojocnean
- 12:00-12:15 Applications of Hadamard convolution in Function Spaces
Anbhu Swaminathan

12:15-12:30 Transforming properties by using a Libera type integral operator
Mugur Acu

12:30-12:45 The Inverse Operator: A Sălăgean-Type Differential Companion
to $\mathcal{J}_c^\delta$
Khalifa Al Shaqsi

12:45-13:00 Sandwich-type results involving Atagana-Băleanu fractional
integral of hypergeometric function
Alina Alb Lupaş and Daria Lupaş

15:00-16:30 Plenary and Short Communications Session (Senat Hall)
Chair: Daniel Valer Breaz

15:00-15:45 Results on the Classical Conjectures of Brannan, Sendov
and Schmeisser
Luminița-Ioana Cotîrlă

15:45-16:00 Univalent operators involving the Bessel function of the first kind
Georgia Irina Oros

16:00-16:15 Convex Combinations of Graham-Kohr Type Extension Operators
in $\mathbb{C}^n$
Eduard Ștefan Grigoriuc

16:15-16:30 Neighborhood of a Certain Family of Multivalent Functions
with Negative Coefficients and Connections to the
Lambert Series and Robin's
Jamal Salah

16:30-16:45 Coffee Break

16:45-18:00 Short Communications (Senate Hall) Chair: Luminița-Ioana Cotîrlă

16:45-17:00 Coefficient Problems for $(\varkappa)$ -Pseudo (q) -Bi-Convex Functions
Associated with (q) -Bernoulli Polynomials
Abdullah Alsoboh

17:00-17:15 Preserving some classes of meromorphic functions defined by an
operator with convolution
Elisabeta-Alina Totoi

17:15-17:30 Pre-Schwarzian norm estimates for type Janowski convex functions
Ali Ebadian

17:30-17:45 Differential Subordinations Related to Bazilevič Type Functions
associated with κ -Symmetric Points and q -Calculus Operator
Nicoleta Breaz

17:45-18:00 Coefficient Estimates for q -Analogues of Quasi-Convex Function
Classes via Generalized q -Janowski Parameters
Shujaat Ali Shah

18:00-18:30 Closing Ceremony (Senate Hall)

Abstracts

Differential, integral, convolution operators and certain classes of functions

Grigore Ștefan Sălăgean¹

¹Babeș-Bolyai University, Cluj-Napoca, Romania
E-mail: salageans@math.ubbcluj.ro

Abstract: I will present some classical and some recent results concerning so called Salagean differential operator, Ruscheweyh differential operator and some of their generalizations: the operators of Al-Oboudi, Catas, Srivastava and Attiya etc., operators defined by using convolution, q -differential operators, integral operators (Alexander, Libera, Bernardi, Pascu, Breaz) and connections with certain classes of functions.

Certain Subclasses of Analytic Functions Defined by Srivastava-Owa Operators and Poisson Distributions

Maslina Darus¹, Lee Chew Yee²

¹School of Mathematical Sciences, Faculty of Science and Technology, University
Kebangsaan Malaysia, 43600 UKM Bangi, Selangor DE, Malaysia
E-mail: maslina@ukm.edu.my

²School of Mathematical Sciences, Faculty of Science and Technology, University
Kebangsaan Malaysia, 43600 UKM Bangi, Selangor DE, Malaysia
E-mail: p154492@siswa.ukm.edu.my

Abstract: In this study, we introduce a new subclass of analytic functions by taking Hadamard products of the Srivastava-Owa operators and Poisson distributions. Some interesting results, such as coefficient bounds, Fekete–Szegő functionals, growth and distortion theorems, inclusion results, and radius problems, are examined. Moreover, we access several results on partial sums. Classical methods of coefficient derivation and some inequalities are applied. This paper elaborates on the geometric properties of the said subclasses.

Extension of Convex Combination of Graham-Kohr Type

Anamaria Paştiu¹

¹Department of Mathematics, Faculty of Mathematics and Computer Sciences,
"Babeş-Bolyai" University, 1 Kogălniceanu Street, 400084 Cluj-Napoca, Romania
E-mail: anamaria.pastiu@ubbcluj.ro

Abstract: We investigate convex combinations of Graham–Kohr type extension operators acting on classes of holomorphic functions. The study focuses on operators of the form

$$\mathcal{G}_{n,\lambda}^{\beta_1,\beta_2} = (1 - \lambda)\Phi_{n,\beta_1} + \lambda\Phi_{n,\beta_2},$$

where $\lambda \in [0, 1]$ and $\beta_1, \beta_2 \in [0, \frac{1}{2}]$. This family includes, as particular cases, the classical Roper–Suffridge (see [4]) and the generalized Roper–Suffridge operator, first introduced in [2,3] by Graham and Kohr. Under suitable assumptions, it is shown that if $f \in S^*$, then $\mathcal{G}_{\lambda}^{\beta_2}(f)$ belongs to $S^*(\mathbb{B}^n)$, and that for normalized univalent Bloch functions on the unit disc, both $\mathcal{G}_{\lambda}^{\beta_2}(f)$ and $\mathcal{G}_{\lambda}^{\beta_1,\beta_2}(f)$ are Bloch mappings on the unit ball $\mathbb{B}^n$.

A more general convex combination is also considered,

$$\mathcal{GK}_{n,\lambda}^{\alpha_1,\alpha_2,\beta_1,\beta_2} = (1 - \lambda)\Phi_{n,\alpha_1,\beta_1} + \lambda\Phi_{n,\alpha_2,\beta_2},$$

where $\lambda, \alpha_i \in [0, 1]$, $\beta_i \in [0, \frac{1}{2}]$, and $\alpha_i + \beta_i \leq 1$ for $i = 1, 2$. This operator unifies and extends several known constructions, including the generalized Roper–Suffridge and Graham–Kohr operators (see [1]). Under suitable assumptions, it is shown that if $f \in S^*$, then $\mathcal{GK}_{\lambda}^{\alpha_2,\beta_2}(f)$ belongs to $S^*(\mathbb{B}^n)$, and that for normalized univalent Bloch functions on the unit disc, both $\mathcal{GK}_{\lambda}^{\alpha_2,\beta_2}(f)$ and $\mathcal{GK}_{\lambda}^{\alpha_1,\alpha_2,\beta_1,\beta_2}(f)$ are Bloch mappings on the unit ball $\mathbb{B}^n$.

References

1. Graham I., Hamada H., Kohr G., Suffridge T.J., Extension Operators for Locally Univalent Mappings, Michigan Math. J. 50 (2002), 37–55.
2. Graham I., Kohr G., Univalent mappings associated with the Roper–Suffridge extension operator, J. Anal. Math. 81 (2000), 331–342.
3. Graham I., Kohr G., An Extension Theorem and Subclasses of Univalent Mappings in Several Complex Variables, Complex Variables Theory Appl. 47 (2002), 59–72.
4. Roper K., Suffridge T.J., Convex mappings on the unit ball in $\mathbb{C}^n$, J. Analyse Math. 65 (1995), 333–347.

Coefficient Bounds for generalized κ -Fold Symmetric Bi-Univalent Classes

Alin Florin Danciu¹

¹Department of Mathematics, Babeş Bolyai University Cluj-Napoca, Romania

Abstract: In this paper, we prove the sharp version of a starlikeness condition of the Bernardi integral operator. The method of convolution is used in the proof.

The primary objective of this paper is to investigate and establish a new, sharp sufficient condition for the starlikeness of the well-known Bernardi integral operator. By employing the classic method of convolution (Hadamard product) in combination with the properties of the Herglotz integral representation formula, we analyze a specific third-order differential subordination.

Assuming that the parameter α lies in the real interval $(-1, \alpha_0]$, where $\alpha_0 \in (0, 1)$ is determined via double integral inequalities, we prove that the condition $\operatorname{Re} \left(\frac{2+\alpha}{1+\alpha} z f''(z) + \frac{z^2}{1+\alpha} f'''(z) \right) > -c$ implies that f is a starlike function. The constant c is given explicitly in terms of an infinite series, and its sharp nature is rigorously demonstrated by constructing a non-univalent function for any value of the constant larger than c .

As an application of the main theorem, a significant corollary regarding a related class of integral operators is derived. Finally, we discuss the analytical limitations of our approach for larger values of α and pose an interesting open problem regarding the extension of these results to a wider neighborhood of $\alpha = 1$, which would encompass the Libera operator.

2020 Mathematics Subject Classification: 30C10, 30C50.

Keywords: Bi-univalent functions; differential subordination; κ -fold rotational symmetry; Taylor coefficient bounds; Fekete-Szegő functional analysis.

On some class of holomorphic mappings. Applications to non-linear resolvents

Mark Elin¹,

¹Braude College of Engineering, Karmiel, Israel

E-mail: mark_elin@braude.ac.il

Abstract: This talk addresses two interconnected goals. The first is to examine a specific subspace of the Fréchet space of holomorphic mappings in the open unit ball of a complex Banach space. We explore the geometric and analytic properties of mappings in this subspace.

Notably, in the one-dimensional case this subspace coincides with the whole space of functions holomorphic in the unit disk.

The second goal focuses on non-linear resolvents associated with holomorphically accretive mappings belonging to the above subspace. We derive a new distortion theorem for non-linear resolvents and subsequently apply to establish the order of starlikeness of such resolvents.

On differences of initial logarithmic coefficients of some classes of univalent functions

Milutin Obradović¹,

¹University of Belgrade, Belgrade, Serbia

E-mail: obrad@grf.bg.ac.rs

Abstract: Let $\mathcal{A}$ denote the family of all analytic functions in the unit disk

$\mathbb{D} := \{z \in \mathbb{C} : |z| < 1\}$ with the normalization $f(0) = 0 = f'(0) - 1$ and let $\mathcal{S}$, $\mathcal{S} \subset \mathcal{A}$, be the class of univalent functions in $\mathbb{D}$.

For $f \in \mathcal{S}$ we define logarithmic coefficients γ_n by

$$F_f(z) := \log \frac{f(z)}{z} = 2 \sum_{n=1}^{\infty} \gamma_n z^n.$$

In this lecture some recent results concerning differences of the type $|\gamma_2| - |\gamma_1|$, $|\gamma_3| - |\gamma_2|$ for some classes of univalent functions will be given. Also, the problems for the whole class $\mathcal{S}$ will be treated. These results were given by the author and his cooperators.

Proof of Yamashita's Conjecture for a Class of Univalent Functions

Teodor Bulboacă¹

¹Faculty of Mathematics and Computers Science, Research Centre of Applied Analysis,

Babeş-Bolyai University, 400084 Cluj-Napoca, Romania

E-mail: teodor.bulboaca@ubbcluj.ro

Abstract: We investigate the class $\mathcal{U}(\lambda, \mu)$ of analytic functions defined in the open unit disk, normalized by the conditions $f(0) = 0 = f'(0) - 1$, which satisfy the inequality $|(z/f(z))^2 f'(z) - \mu| < \lambda$ for parameters $\mu \in \mathbb{C}$ and $\lambda \in (0, 1]$. Under suitable restrictions on the parameters, it is well established that all functions of this family are univalent. The primary objective of this paper is to determine a sharp upper bounds for the Yamashita functional,

$$\max_{f \in \mathcal{U}(\lambda, \mu)} \Delta \left(r, \frac{z}{f(z)} \right) \text{ for } r \in (0, 1],$$

where $\Delta(r, z/f(z))$ represents the area of the multi-sheeted image of the disk $|z| < r$ under the transformation $z/f(z)$. Furthermore, we deduce a sharp upper bound for the maximum value of the integral means $L(r, f)$ for functions $f \in \mathcal{U}(\lambda, \mu)$, defined as

$$L(r, f) := \frac{r^2}{2\pi} \int_{-\pi}^{\pi} \left| \frac{1}{f(re^{i\theta})} \right|^2 d\theta.$$

The evaluation of the integral means $L(r, f)$ has unique and significant applications in fluid mechanics, particularly concerning the isoperimetric problems for moving phase domains. Consequently, establishing precise estimates for the maximal values

of both $\Delta(r, z/f(z))$ and $L(r, f)$ is an important problem in Geometric Function Theory. To establish these sharp bounds we formulate and prove several foundational lemmas which serve as essential mathematical tools for the proofs of our main theorems.

based on a joint paper with: Ebrahim Analouei Adegani, Faculty of Mathematical Sciences, Shahrood University of Technology, P.O. Box 316-36155, Shahrood, Iran. and Navneet Lal Sharma, Department of Mathematics, Gati Shakti Vishwavidyalaya Vadodara, A Central University under the Ministry of Railways, Government of India. Lalbaug, Vadodara-390004, Gujarat. India.

Filtration Families in Geometric Function Theory and their Dynamics

Fiana Jacobzon¹

¹Department of Mathematics, Braude College of Engineering, Karmiel 2161002, Israel
E-mail: fiana@braude.ac.il

Abstract: This talk presents solutions and insights regarding two key problems. One concerns criteria for determining whether a given holomorphic function generates a semigroup in the open unit disk, while the other examines the intertwining of geometric properties and dynamical behavior.

Recently, significant advances in these directions have been made using filtrations of generators. While various filtrations have been introduced from different perspectives and for diverse purposes, we systematize their study by introducing a structured framework of core questions. Through this approach, we present several new filtrations and establish new results. We give particular attention to dynamical aspects, including uniform convergence on the unit disk and the sectorial analytic extension of semigroups with respect to their parameter.

Finally, we solve the Fekete–Szegő problem and other coefficient questions over specific filtration classes.

Convolution Properties and Convex Combinations for a Class of Bounded Harmonic Mappings

Fethiye Müge Sakar¹, Seher Melike Aydoğan², Asena Çetinkaya³, Oya Mert Coşkun⁴ and İzzet Göksel²

¹Department of Management, Dicle University, Diyarbakır, Türkiye

²Department of Mathematics, Istanbul Technical University, Istanbul, Türkiye

³Department of Mathematics, Istanbul Kültür University, Istanbul, Türkiye

⁴Department of Mathematics, Tekirdağ Namık Kemal University, Tekirdağ, Türkiye

Abstract: In this work, we study convolution properties and convex combinations associated with a subclass of bounded harmonic mappings in the open unit disk. More precisely, we consider normalized harmonic mappings $f = h + \bar{g}$ satisfying a coefficient-controlled boundedness condition depending on the parameters $\lambda \geq 0$ and

$M > 0$. By using coefficient estimates and classical convolution techniques, we show that the considered class is preserved under suitable Hadamard products and under convex combinations of its members. In addition, we obtain inclusion-type results that connect these harmonic mappings with close-to-convex, fully starlike and fully convex behavior under appropriate restrictions on the parameters. The results contribute to the geometric theory of harmonic mappings by clarifying how convolution operations affect bounded harmonic subclasses and their geometric stability.

Keywords: harmonic mappings; bounded harmonic functions; convolution; Hadamard product; convex combinations; close-to-convex functions.

2020 Mathematics Subject Classification: 30C45; 30C55; 31A05.

Acknowledgement The present investigation was supported by the Scientific and Technological Research Council of Türkiye (TÜBİTAK 1002 – Short Term R&D Funding Program), Project Number: 124F430.

References

1. P. Duren, *Harmonic Mappings in the Plane*, Cambridge University Press, Cambridge, 2004.
2. H. Lewy, On the non-vanishing of the Jacobian in certain one-to-one mappings, *Bull. Amer. Math. Soc.* **42** (1936), 689–692.
3. Z. Zhongzhu and S. Owa, Convolution properties of a class of bounded analytic functions, *Bull. Austral. Math. Soc.* **45** (1992), 9–23.

A unified approach to the generalized Fekete–Szegő functional in complex Banach spaces

Mihai Aron¹

¹Department of Mathematics, Faculty of Mathematics and Computer Sciences,
"Babeş-Bolyai" University, 1 Kogălniceanu Street, 400084 Cluj-Napoca, Romania
E-mail: mihai.aron@ubbcluj.ro

Abstract: The generalized Fekete–Szegő functional for a nonempty class $\mathcal{F} \subseteq S$ is given by

$$f \mapsto |a_3(f) - \lambda [a_2(f)]^2| - \mu |a_2(f)|,$$

where $f \in \mathcal{F}$, $\lambda \in \mathbb{C}$, $\mu \geq 0$, and $a_2(f) = f''(0)/2$, $a_3(f) = f'''(0)/6$ are, respectively, the second and third coefficients in the power expansion of f . This functional was studied on the classes S and K in [3,2]. A sharp estimate for the generalized Fekete–Szegő functional on S^* is missing from the known literature. We present a unified approach to the generalized Fekete–Szegő functional on subclasses of starlike, convex, and α -convex functions on the unit disc U .

Also, we propose an extension of the generalized Fekete–Szegő functional for nonempty classes of normalized locally biholomorphic mappings on the unit ball $\mathbb{B}$ in an arbitrary complex Banach space X .

The main goal is to present a unified approach to the generalized Fekete–Szegő functional in the context of complex Banach spaces. We study subclasses of starlike,

quasi-convex, and α -quasi-convex mappings defined on $\mathbb{B}$. Sharp inequalities for the generalized Fekete–Szegő functional are derived for these subclasses, extending classical results to higher-dimensional settings. Important particular cases improve recent works on the classical Fekete–Szegő functional. As a consequence, in the spirit of [1], we present a unified approach of the Fekete–Szegő functional for important subclasses of locally biholomorphic mappings on the unit polydisc of $\mathbb{C}^n$.

References

1. Aron, M. *Fekete–Szegő inequality, coefficient estimates and construction methods for elastically starlike mappings on the unit ball of complex Banach spaces*. Anal. Math. Phys. 16, 85 (2026).
<https://doi.org/10.1007/s13324-026-01235-1>
2. Bulboacă, T., Obradović, M., Tuneski, N. *Simple proofs of certain results on generalized Fekete–Szegő functional in the class S* . Anal. Math. Phys. 15, 102 (2025). <https://doi.org/10.1007/s13324-025-01103-4>
3. Lecko, A., Partyka, D. *A generalized Fekete–Szegő functional and initial successive coefficients of univalent functions*. Bull. Sci. Math. 197, 103527 (2024). <https://doi.org/10.1016/j.bulsci.2024.103527>

Argument Properties Associated with Fractional Derivatives of Analytic Functions

Emel Yavuz¹

¹Department of Mathematics and Computer Science İstanbul Kültür University Ataköy Campus, Bakırköy, İstanbul, Türkiye
E-mail: e.yavuz@iku.edu.tr

Abstract: In this paper, we investigate argument properties and differential subordination associated with the generalized fractional derivative operator

$$D_z^{j+\lambda} f(z),$$

where $0 \leq \lambda < 1$, for normalized analytic functions in the open unit disk. The study is carried out within the framework of Owa fractional calculus by combining differential subordination techniques with the argument methods of Miller and Mocanu and Nunokawa’s lemma.

Our investigation focuses on the expressions

$$\frac{D_z^{j+\lambda} f(z)}{z^{1-j-\lambda}}$$

and the corresponding logarithmic derivative. New sufficient conditions are established to ensure bounded argument properties for these fractional differential expressions. In addition, several subordination results are obtained, extending well-known argument estimates from classical geometric function theory to the fractional setting. We also discuss important special cases corresponding to classical derivative

operators and show that the obtained criteria lead to new applications concerning univalence of analytic functions.

The results demonstrate that fractional differential operators provide a natural and effective framework for extending classical argument and subordination theories in geometric function theory.

2020 Mathematics Subject Classification: 30C45.

Keywords: Analytic function, fractional derivative, argument property, subordination.

Advances in Bohr Phenomena for Harmonic Mappings and Special Function Techniques

Asena Çetinkaya¹, Omendra Mishra², Seher Melike Aydoğan³

¹Istanbul Kültür University, Istanbul, Türkiye

E-mail: asnfigen@hotmail.com

²Shri Ramswaroop Memorial University, Lucknow 225003, India

E-mail: mishraomendra@gmail.com

³Istanbul Technical University, Istanbul, Türkiye

E-mail: aydogansm@itu.edu.tr

Abstract: The theory of Bohr-type inequalities has become a vibrant research area in geometric function theory and complex analysis due to its close relationship with coefficient estimates, extremal problems, and geometric properties of analytic and harmonic mappings. Motivated by recent developments in harmonic mapping theory and differential operator techniques, we investigate Bohr and Bohr–Rogosinski phenomena for a subclass of harmonic close-to-convex mappings satisfying a third-order differential inequality.

On the theorem of univalence on the boundary

Adina Cristea¹

Abstract: We give several generalizations of a known theorem from complex analysis, namely the univalence on the boundary theorem. Starting from a purely topological result we obtain univalence conditions for Sobolev mappings.

On the Theorem of Univalence of the Boundary

Mihai Cristea¹

Abstract: We give several generalizations of a known theorem from complex analysis, namely the univalence on the boundary theorem. Starting from a purely topological result (Theorem 1 and Theorem 11), we obtain univalence conditions for Sobolev mappings.

Contributions to the Study of Classes of Analytic Functions Defined by Subordination, Integral Operators, and Libera-Type Iterative Operators

Andreea Cuntan¹, Daniel Valer Breaz²

¹Babeş-Bolyai University of Cluj-Napoca

²"1 Decembrie 1918" University of Alba Iulia, Alba Iulia, Romania

E-mail: dbreaz@uab.ro

Abstract: This paper presents contributions to the study of classes of analytic functions defined in the open unit disk, obtained by methods specific to the geometric theory of analytic functions. Three main research directions are considered: the estimation of the third-order Hankel determinant for starlike functions of order α , the study of classes of functions defined by means of a generalized integral operator, and the investigation of classes associated with Libera-type iterative operators. The methods employed are based on the theory of subordination, the class of functions with positive real part, classical coefficient estimates, and representation techniques of Carathéodory and Libera-Złotkiewicz type. The obtained results emphasize the role of integral and iterative operators in defining and characterizing subclasses of analytic functions, as well as in establishing sufficient conditions for membership and inclusion.

Keywords: analytic functions; starlike functions; subordination; Hankel determinant; integral operators; Libera operators; Carathéodory functions.

Tempered Exponential Dichotomy for Random Discrete-Time Systems and Lyapunov Characterizations

Albescu Oana¹

¹Department of Mathematics, Transilvania University of Brasov, Romania

Abstract: This work investigates the concept of tempered exponential dichotomy in the framework of random semi-dynamical systems, with particular emphasis on discrete-time systems defined on semi-axes (one-sided systems). Building on the classical theory of exponential dichotomies and its stochastic extensions, we introduce a formulation of tempered exponential dichotomy adapted to random discrete systems and provide necessary and sufficient conditions for its existence. We further develop Datko-type criteria for stability and instability and establish new characterizations of tempered exponential dichotomy in terms of Lyapunov functions. These results are obtained for both invariant and non-invariant projections, offering a broader perspective on the structure of the associated invariant splittings.

2020 Mathematics Subject Classification: 34D09; 34D20

Keywords: Lyapunov functions, tempered exponential dichotomy

Geometric-Analytic Criteria for Relay Protection: Differential Subordination, Quasiconformal Distortion, and Multivalent Network Functions

Mihaela Aldea¹, Remus Dobra¹, Mircea Rîșteiu¹

¹ "1 Decembrie 1918" University din Alba Iulia, Faculty of Computer Science and Engineering, Department of Computer Science, Mathematics and Electronics, Gabriel Bethlen st, Alba Iulia, Romania
E-mail: maldea@uab.ro

Abstract: This paper reports an experimental and MATLAB-supported study of a unified geometric-function-theory approach to problems in electrical relay protection, combining tools from univalent and multivalent function theory, differential subordinations, special-function expansions, and quasiconformal mappings in several complex variables. First, we model protection decision maps as analytic mappings from measured phasor/complex-frequency domains to fault-index variables and derive sufficient injectivity and monotonicity conditions via coefficient bounds and differential subordination theorems. Next, we analyze multi-terminal impedance and transfer functions as multivalent analytic continuations; branch-point and branch-cut structure is characterized to identify ambiguous fault signatures and to propose branch-aware criteria for robust decision-making. We introduce quasiconformal distortion bounds to capture sensor nonidealities and network anisotropies, yielding explicit thresholds that guarantee distortion-tolerant operation. Special-function and series expansions are used to obtain accurate transient models for traveling-wave and high-frequency protection schemes; asymptotic estimates provide practical bounds for detection latency. The theoretical results are validated on representative single- and multi-terminal fault scenarios through numerical simulation, showing reductions in false-trip/failed-trip rates and tighter guarantees on detection stability under noise and parameter uncertainty. The paper demonstrates that geometric function theory furnishes practical, provable tools for enhancing relay protection design and assessment.

Key words: Geometric function theory, differential subordination, multivalent network functions, Relay protection, phasor/complex-frequency analysis

The Fekete-Szegő Problem for a Subclasses of Bi-Univalent Functions Associated with Generalized Mersenne Polynomials

Mihaela Cojocnean¹

¹Department of Mathematics, Babeş Bolyai University Cluj-Napoca, Romania

Abstract: In this paper, we introduce and systematically investigate a novel subclass of symmetric bi-univalent functions defined in the open unit disk. This newly proposed class is constructed by establishing a connection with generalized Mersenne polynomials and is characterized through suitable subordination conditions. By employing analytical techniques and properties of these polynomials, we derive meaningful coefficient bounds for functions belonging to this subclass. In particular, we

obtain estimates for the initial Taylor–Maclaurin coefficients, namely and , which play a crucial role in the geometric function theory of bi-univalent functions. Furthermore, under the given framework, we construct the Fekete-Szegő inequality, which provides sharper bounds for . The results presented in this study not only generalize several earlier findings in the literature, but also contribute to a deeper understanding of the structural properties of bi-univalent function classes associated with special polynomial sequences.

2020 Mathematics Subject Classification: 30C10, 30C50

Keywords: Bi-univalent functions, Mersenne polynomials, Fekete–Szegő inequality, analytic functions, coefficient estimates

Applications of Hadamard convolution in Function Spaces

Anbhu Swaminathan¹

¹Department of Mathematics

Indian Institute of Technology, Roorkee-247667, Uttarakhand, India

E-mail: mathswami@gmail.com, a.swaminathan@ma.iitr.ac.in

Abstract: Hadamard convolution play a vital role in univalent function theory and in particular for the duality techniques. Hadamard convolution can be seen either in terms of a power series or as an integral representation. In this talk, integral representation of few special functions using the Hadamard convolution will be provided, which in turn, leads to study specific properties of the special functions under consideration. The results leading further generalizations in terms of hypergeometric functions will be discussed. Open problems and directions for future research will be outlined.

2020 Mathematics Subject Classification: 30C45, 33C45, 42C05, 30C15, 15A24

Keywords: Univalent functions; Starlike functions; Convex functions; Hypergeometric functions; Hadamard Convolution

Transforming properties by using a Libera type integral operator

Mugur Acu¹

¹Department of Mathematics, Lucian Blaga University of Sibiu, Romania

Abstract: In this note we give transforming properties, by using a Libera type integral operator, for some subclasses of analytic functions related with the n -uniformly starlike and n -uniformly close to convex functions.

The Inverse Operator: A Sălăgean-Type Differential Companion to $\mathcal{J}_c^\delta$

Khalifa Al Shaqsi¹,

¹Department of Mathematical and Physical Sciences, College of Arts and Sciences,
University of Nizwa, Oman
E-mail: khalifa.alshaqsi@unizwa.edu.om

Abstract: A Sălăgean-type differential operator $\mathcal{D}_c^\delta$ is introduced on the class of normalized analytic functions in the open unit disk as the convolution inverse of the polylogarithm integral operator $\mathcal{J}_c^\delta$ of AL-Shaqsi (2014). The two operators are shown to satisfy the mutual inversion identity $\mathcal{J}_c^\delta(\mathcal{D}_c^\delta f) = \mathcal{D}_c^\delta(\mathcal{J}_c^\delta f) = f$, together with a semigroup property and a differential recurrence relation dual to that of $\mathcal{J}_c^\delta$. Classes of admissible functions associated with $\mathcal{D}_c^\delta$ are introduced, and strong differential subordination, superordination, and sandwich-type theorems are established. A fundamental novelty of the paper is an *inversion principle* that systematically transfers strong subordination and superordination implications between the integral and differential frameworks. The action of $\mathcal{D}_c^\delta$ is illustrated on the Koebe function, with numerical coefficient values and geometric figures showing the smoothing/amplification duality between the two operators and providing a visual verification of the inversion identity. At $c = 0$ the framework recovers the classical Sălăgean differential operator D^n , and the strong-subordination theory for D^n obtained here appears to be new in this generality.

2020 Mathematics Subject Classification: 30C45; 30C80; 30C50

Keywords: Analytic functions; univalent functions; Sălăgean operator; polylogarithm; differential operator; convolution inverse; strong differential subordination; strong differential superordination; sandwich theorems; inversion principle.

Contributions to the Study of Classes of Analytic Functions Defined by Subordination, Integral Operators, and Libera-Type Iterative Operators

Alina Alb Lupas¹, Daria Lupas²

¹Department of Mathematics and Computer Science, University of Oradea, 1
Universitatii street, 410087 Oradea, Romania
E-mail: alblupas@gmail.com

²Faculty of Construction, Cadastre and Architecture, University of Oradea, Romania
E-mail: daria.lupas@gmail.com

Abstract: Using the differential subordinations theory together with its dual, the differential superordinations theory, designed by Miller and Mocanu, we can reinterpret some inequalities concerning real-valued functions regarding the complex-valued functions. As an overview, the subordination and superordination properties obtained for various operators, put together, generate sandwich results, as in this paper, where we define a new operator as the fractional integral developed by Atangana and Baleanu applied to confluent hypergeometric function and we describe

several subordination results, which by duality give the corresponding superordination results and sandwich-type theorems.

2020 Mathematics Subject Classification: 30C45.

Keywords: analytic function, univalent function, differential operator, fractional integral, differential subordination, best dominant, differential superordination, best subordinant.

References

1. Mainardi, F.; Gorenflo, R. On Mittag-Leffler-type functions in fractional evolution processes. *Journal of Computational and Applied Mathematics*, **2000**, *118* (1–2), 283–299. [https://doi.org/10.1016/S0377-0427\(00\)00294-6](https://doi.org/10.1016/S0377-0427(00)00294-6)
2. Rogosin, S. The Role of the Mittag-Leffler Function in Fractional Modeling. *Mathematics*, **2015**, *3*(2), 368–381; <https://doi.org/10.3390/math3020368>
3. Mainardi, F. Why the Mittag-Leffler Function Can Be Considered the Queen Function of the Fractional Calculus?. *Entropy*, **2020**, *22*, 1359. <https://doi.org/10.3390/e22121359>
4. Caputo, M.; Fabrizio, M. A New definition of fractional derivative without singular kernel. *Progr. Fract. Differ. Appl.*, **2015**, *1*, 73–85.
5. Agarwal, P.; Jain, S.; Mansour, T. Further extended Caputo fractional derivative operator and its applications. *Russ. J. Math. Phys.* **2017**, *24*, 415–425. <https://doi.org/10.1134/S106192081704001X>
6. De Branges, L. A proof of the Bieberbach conjecture. *Acta Math.* **1985**, *154*, 137–152.
7. Oros, G.I. New Conditions for Univalence of Confluent Hypergeometric Function. *Symmetry* **2021**, *13*(1), 82.
8. Porwal, S.; Kumar, S. Confluent hypergeometric distribution and its applications on certain classes of univalent functions. *Afr. Mat.* **2017**, *28*, 1–8.
9. Ghanim, F.; Al-Janaby, H. F. An analytical study on Mittag-Leffler–confluent hypergeometric functions with fractional integral operator. *Math. Methods Appl. Sci.*, **2020**, <https://doi.org/10.1002/mma.6966>.
10. Atangana, A.; Baleanu, D. New fractional derivatives with nonlocal and non-singular kernel: theory and application to heat transfer model. *Thermal Science*, **2016**, *20*(2), 763–769.
11. Abdeljawad, T.; Baleanu, D. Integration by parts and its applications of a new nonlocal fractional derivative with Mittag-Leffler nonsingular kernel. *The Journal of Nonlinear Sciences and Applications*, **2017**, *10*(3), 1098–1107.
12. Miller, S.S.; Mocanu, P.T. Differential Subordinations. Theory and Applications. Marcel Dekker Inc., New York, Basel, 2000.

13. Miller, S.S.; Mocanu, P.T. Subordinants of differential superordinations. *Complex Var.* **2003**, *48*, 815–826.
14. Bulboacă, T. Classes of first order differential superordinations. *Demonstratio Math.* **2002**, *35*(2), 287–292.

Results on the Classical Conjectures of Brannan, Sendov and Schmeisser

Luminița-Ioana Cotîrlă¹

¹Technical University, Department of Mathematics, Cluj-Napoca, Romania
E-mail: Luminita.Cotirla@math.utcluj.ro

Abstract: The results presented here were introduced in the papers [7], [4], [6].

The Brannan conjecture is proven provided that the parameters α and β satisfy the conditions $\frac{3}{4} \leq \alpha \leq \beta \leq 1$.

The basic tool of the study is a new integral representation. A partial result of the general case is established, which suggests that Brannan's conjecture holds in the general case too. Furthermore, several sufficient conditions implying the conjecture of Sendov are provided. Convexity methods are employed in order to prove the main result.

Sendov's conjecture concerns the critical points of polynomials, and Schmeisser's conjecture is a stronger assertion than Sendov's.

Certain conditions implying Sendov's and Schmeisser's conjectures are presented.

Geometric transformations are used in order to prove the main results. New results are established in connection with Sendov's and Schmeisser's conjectures.

2020 Mathematics Subject Classification: 26C10, 12D10, 30C15, 30C45.

Keywords: Polynomial, critical points, Brannan's conjecture, Sendov's conjecture, Schmeisser's conjecture, integral representation

References

1. B. Bojanov, Q. Rahman, J. Szynal, *On a conjecture of Sendov about the critical points of a polynomial*. Math. Z. 190, (1985), 281–285;
2. I. Borcea, *On the Sendov conjecture for polynomials with at most six distinct roots*, J. Math. Anal. Appl. 200, (1996), 182–206;
3. D.A. Brannan, *On coefficient problems for certain power series*, Proceedings of the Symposium on Complex Analysis (Univ. Kent, Canterbury, 1973), Cambridge Univ. Press, London, (1974), 17–27;
4. **L.I. Cotîrlă**, *New results regarding Sendov's conjecture*, Integral Transforms And Special Functions, (submitted), (2026);
5. **L.I. Cotîrlă**, R. Szász, *On the general case of Brannan conjecture*, J. Math. Inequal., Vol.18, No.3, (2024), 953–969;

6. **L.I. Cotîrlă**, R. Szász, *On Sendov's and Schmeisser's conjecture*, Analysis and Applications, (submitted), (2026);
7. **L.I. Cotîrlă**, R. Szász, *On Sendov's conjecture*, Filomat, 16 (2023), p.5283-5286;
8. Q.I. Rahman , G. Schmeisser, *Analytic Theory of Polynomials*, Oxford University Press, (2002);
9. T. Tao, *Sendov's conjecture for sufficiently high degree polynomials* Acta Math. 229 (2), (2022), p. 347 - 392.

Univalent operators involving the Bessel function of the first kind

Georgia Irina Oros¹

¹Department of Mathematics and Computer Science, Faculty of Informatics and Sciences, University of Oradea, Romania ORCID ID: 0000-0003-2902-4455
E-mail: georgia_oros_ro@yahoo.co.uk (goros@uoradea.ro)

Abstract: This presentation discusses two operators involving the Bessel function of the first kind. The first operator is a linear operator defined by the convolution of the generalized Dziok–Srivastava hypergeometric operator and the Bessel function of the first kind. The second operator is an integral operator defined by using the Bessel function of the first kind. Conditions for the univalence of both operators are discussed in terms of starlikeness and convexity conditions by utilizing the classical theory of differential subordination initiated by Miller and Mocanu.

2020 Mathematics Subject Classification: 30C45; 30C80; 33C10

Keywords: Bessel function of the first kind; Dziok-Srivastava operator; Convolution; Integral operator; Univalent function; Differential subordination.

Convex Combinations of Graham-Kohr Type Extension Operators in $\mathbb{C}^n$

Eduard Ștefan Grigoriuc^{1,2}

¹Faculty of Mathematics and Computer Science, Babeș-Bolyai University, 1 M. Kogălniceanu Street, 400084 Cluj-Napoca, Romania

²Tiberiu Popoviciu Institute of Numerical Analysis, Romanian Academy, P.O. Box 68-1, 400110 Cluj-Napoca, Romania

Abstract: This presentation is devoted to the study of convex combinations of the form $\mathcal{K}_{n,\lambda}^{\alpha,\beta} = (1 - \lambda)\Psi_{n,\alpha} + \lambda\Psi_{n,\beta}$ of Graham-Kohr extension operators $\Psi_{n,\alpha}$, where $\lambda \in [0, 1]$ and $\alpha, \beta \in [0, 1]$. The operators $\Psi_{n,\alpha}$ were defined by I. Graham and G. Kohr in *Complex Variables Theory Appl.* **47** (2002), 59–72. They proved that the extension operator $\Psi_{n,\alpha}$ preserve the starlikeness for all $n \geq 2$ and $\alpha \in [0, 1]$. The main idea of this presentation is to obtain new extension operators defined by

convex combinations of Graham-Kohr type operators that preserve the starlikeness. We prove that a starlike function $f \in S^*$ with $\Re f'(z_1) > 0$, for all $z_1 \in \mathbb{U}$, is taken to a starlike mapping on the Euclidean unit ball $\mathbb{B}^n$ by the operators $\mathcal{K}_\lambda^0$ and $\mathcal{K}_\lambda^1$, where $\mathcal{K}_\lambda^0$ and $\mathcal{K}_\lambda^1$ are particular forms of the operator $\mathcal{K}_{n,\lambda}^{\alpha,\beta}$.

References

1. I. Graham, G. Kohr, *Extension operators and subclasses of starlike mappings in $\mathbb{C}^n$* , Complex Variables Theory Appl. **47** (2002), 59–72.
2. I. Graham, G. Kohr, *Geometric Function Theory in One and Higher Dimensions*, Marcel Dekker, New York, 2003.
3. I. Graham, H. Hamada, G. Kohr, M. Kohr, *g -Loewner Chains, Bloch Functions and Extension Operators in Complex Banach Spaces*, Anal. Math. Phys. **10** (2020), Article 5, 28 pp.
4. H. Hamada, G. Kohr, M. Kohr, *Roper-Suffridge Type Extension Operators for Univalent Mappings Revisited*, J. Math. Anal. Appl. **552** (2025), Article 129763.

Neighborhood of a Certain Family of Multivalent Functions with Negative Coefficients and Connections to the Lambert Series and Robin's

Jamal Salah¹

¹A'Sharqiyah University, Oman

E-mail: damous73@yahoo.com

Abstract: By the use of the linear operator whose coefficients are the sum of divisors function, we introduce and investigate two new subclasses of n -valently analytic functions of complex order. We obtain various results for each of these classes including coefficient inequalities and inclusion relationships involving the (n, δ) -neighborhood of n -valent analytic functions. We further connect the coefficient weights to the Lambert series via the sum-of-divisors function $\sigma(n)$, and derive special-case bounds from Robin's inequalities and their connection to the Riemann hypothesis. Two illustrative corollaries accompany each theorem: one obtained unconditionally from Robin's two-term inequality for integers greater than or equal to three, and a sharper conditional version that holds precisely when the Riemann Hypothesis is true, for integers exceeding 5040. In this way, the coefficient bounds and the neighborhood radii obtained for the two newly introduced classes are shown to depend, in a transparent and quantitative manner, on the arithmetic behaviour of the sum-of-divisors function, thereby providing a concrete link between the geometric theory of multivalent functions and one of the central open problems of analytic number theory.

Coefficient Problems for $(\varkappa)$ -Pseudo (q) -Bi-Convex Functions Associated with (q) -Bernoulli Polynomials

Abdullah Alsoboh¹

¹A'Sharqiyah University, Oman

E-mail: abdullah.alsoboh@asu.edu.om

Abstract: Motivated by the interaction between Jackson (q) -calculus and the generating function of the q -Bernoulli polynomials, we introduce a new subclass of $\varkappa$ -pseudo q -bi-convex functions within the family of bi-univalent functions. The defining subordinations are imposed simultaneously on a function and its analytic inverse through a Jackson q -differential expression controlled by the q -Bernoulli dominant. By comparing the resulting series coefficients, we obtain explicit upper bounds for the initial Taylor–Maclaurin coefficients $|c_2|$ and $|c_3|$. We also establish a Fekete–Szegő inequality for $|c_3 - \mu c_2^2|$, presented in a piecewise form that identifies the transition between its two parameter regimes. Several reductions of the proposed class are discussed, showing how appropriate choices of the parameters recover related q -bi-convex and bi-univalent subclasses. The limiting behavior as $q \rightarrow 1^-$ further connects the obtained results with their classical counterparts. These findings provide a unified setting for coefficient problems involving bi-univalent functions, q -differential operators, and Bernoulli-type generating functions.

2020 Mathematics Subject Classification: 30C45, 30C50, 05A30, 11B68

Keywords: Bi-univalent functions, Jackson (q) -derivative, (q) -Bernoulli polynomials, $(\varkappa)$ -pseudo (q) -bi-convex functions, coefficient estimates, Fekete–Szegő inequality, analytic subordination

Preserving some classes of meromorphic functions defined by an operator with convolution

Elisabeta-Alina Totoi¹

¹Academia Fortelor Terestre Nicolae Bălcescu din Sibiu, Romania

E-mail: totoialina@yahoo.com

Abstract: In this paper, it is considered the class of meromorphic p -valent functions denoted by $\Sigma S_{p,b}^n(\alpha, \delta)$, defined by using an operator with convolution of meromorphic functions. Considering the operator $J_{p,\gamma}$ and some subordination conditions, the preservation of the class $\Sigma S_{p,b}^n(\alpha, \delta)$ it is proved, when this operator is applied.

Pre-Schwarzian norm estimates for type Janowski convex functions

Ali Ebadian¹

¹Department of Mathematics, Faculty of Science, Urmia University Urmia, Iran.
E-mail: e.ebadian@urmia.ac.ir

Abstract: In 2023, Firoz and Pal investigated the pre-Schwarzian norm estimates for the class of Janowski starlike functions. In this paper, we derive the pre-Schwarzian norm estimates for various types of these classes and obtain interesting estimates for specific cases.

2020 Mathematics Subject Classification: 30C45, 30C80

Keywords: univalent analytic function, starlike and convex functions, pre-Schwarzian derivative, Schwarzian norm

Differential Subordinations Related to Bazilevič Type Functions associated with κ -Symmetric Points and q -Calculus Operator

Ekram E. Ali¹, Nicoleta Breaz², Rabha M. El-Ashwah³

¹University of Ha'il, Saudi Arabia

² "1 Decembrie 1918" University of Alba Iulia, Romania

E-mail: nbreaz@uab.ro

³Damietta University, Egypt

Abstract: Differential subordination results for a class of Bazilevič type functions associated with κ -symmetric points are established, including the finding of the best dominants and several special cases obtained for specific values of the parameters involved. Both convolution and q -calculus methods are involved in the linear integro-differential operator used to define and study the proposed subclass of univalent functions.

Coefficient Estimates for q -Analogues of Quasi-Convex Function Classes via Generalized q -Janowski Parameters

Shujaat Ali Shah¹, Summaiya Ayoub Shaikh¹

¹Department of Mathematics and Statistics, Quaid-e-Awam University of Engineering, Science and Technology Nawabshah, Pakistan
E-mail: shujaatali@quest.edu.pk; shahglike@yahoo.com

Abstract: This talk introduces new q -analogues of the quasi-convex function classes $QCV(\mu, A, B)$ and $QST(\eta, A, B)$ by combining Jackson's q -derivative operator with a newly proposed pair of generalized q -Janowski parameters. These parameters reduce to the classical Janowski parameters as q tends to 1, and using them, I establish sharp coefficient bounds for both classes. As a consequence, the classical results of Altıntaş and Kılıç (Turk. J. Math. 42, 2018) are recovered in the limiting case.

Author Index

Abdullah Alsoboh, 29
Adina Cristea, 20
Albescu Oana, 21
Ali Ebadian, 30
Alin Florin Danciu, 15
Alina Alb Lupaş, 24
Anamaria Paştiiu, 14
Anbhu Swaminathan, 23
Andreea Cunţan, 21
Asena Çetinkaya, 17, 20

Daniel Valer Breaz, 21
Daria Lupaş, 24

Eduard Ştefan Grigoriuc, 27
Ekram E. Ali, 30
Elisabeta-Alina Totoi, 29
Emel Yavuz, 19

Fethiye Múge Sakar, 17
Fiana Jacobzon, 17

Georgia Irina Oros, 27
Grigore Ştefan Sălăgean, 13

Izzet Göksel, 17

Jamal Salah, 28

Khalifa Al Shaqsi, 24

Luminiţa-Ioana Cotîrlă, 26

Mark Elin, 15
Maslina Darus, 13
Mihaela Aldea, 22
Mihaela Cojocnean, 22
Mihai Aron, 18
Mihai Cristea, 20
Milutin Obradović, 16
Mircea Rîşteiu, 22
Mugur Acu, 23

Nicoleta Breaz, 30

Omendra Mishra, 20
Oya Mert Coşkun, 17

Rabha M. El-Ashwah, 30
Remus Dobra, 22

Seher Melike Aydoğan, 17, 20
Shujaat Ali Shah, 30
Summaiya Ayoub Shaikh, 30

Teodor Bulboacă, 16