

*Editorial*

## **New Trends in Geometric Function Theory 2011**

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Geometric function theory is the branch of complex analysis which deals with the geometric properties of analytic functions, founded around the turn of the 20th century. In spite of the famous coefficient problem, the Bieberbach conjecture that was solved by Louis de Branges in 1984 suggests various approaches and directions of studies in the geometric function theory. The cornerstone of geometric function theory is the theory of univalent functions, but new related topics appeared and developed with many interesting results and applications. The major and most interesting topics are the theories of harmonic and quasiconformal mappings, and both are natural generalizations of the conformal mappings, but they were studied separately because of their natural significance and reciprocal differences.

The special issue has endeavored to publish research papers of the highest quality with appeal to the specialists in a field of geometric aspects of complex analysis and to broad mathematical community. We do hope that the distinctive aspects of the issue will bring the reader close to the subject of current research and leave the way open for a more direct and less ambivalent approach to the topics.

Inspired by the importance of geometric function theory and in order to stimulate further investigation in this area and the related topics, we decided to edit and publish this second special issue (2011). Like in the previous one, we invited the authors to present their original articles as well as review articles that will stimulate the continuing efforts in developing new results in geometric function theory. We believe that this second special issue will improve our earlier mentioned goal, that is, to become an international forum for researches to summarize the most recent developments and ideas in this field. The main aim of the special issue of our journal was to invite the authors to present their original articles which not only provide new results or methods but also may have a great impact on other people in their efforts to broaden their knowledge and investigation.

During the open period of this special issue, a number of 21 papers were submitted for consideration of publication, but after the review process only 6 papers among these submissions were accepted for publication.

We believe that the results established in the published paper will develop the understanding of the major new problems of this area and the related topics and will explore the further applications in other fields of mathematics.

In "*On starlike and convex functions with respect to  $k$ -symmetric points*," the authors introduced two subclasses of starlike and convex functions with respect to  $k$ -symmetric points, defined by using a new convolution operator. They determined inclusion properties between these classes, and the invariance of the classes with respect to the convolution product with any arbitrary convex function with real coefficients was proved.

Starting from the fact that Y. Domar has given a condition that ensures the existence of the largest subharmonic minorant of a given function and P. J. Rippon pointed out that a modification of Domar's argument gives a better result, in "*Domination conditions for families of quasilinearly subharmonic functions*," by using his previous, rather general and flexible modification of Domar's original argument, the author extends their results both to the subharmonic and quasilinearly subharmonic settings.

Motivated by a multiplier transformation and some subclasses of meromorphic functions which have been defined by means of the Hadamard product of Cho-Kwon-Srivastava operator, the paper entitled "*On certain class of analytic functions related to Cho-Kwon-Srivastava operator*" deals with a similar transformation by means of the new Ghanim-Darus operator. Some inclusion properties, coefficient inequalities, sharp distortion inequalities, and the radius of starlikeness and convexity of a class related to this transformation are given.

The author of "*Stability of admissible functions*," using the concept of the weak subordination, examined the stability for a class of admissible functions in complex Banach spaces. The stability of analytic functions in the following classes is discussed: Bloch class, little Bloch class, hyperbolic little Bloch class, extend Bloch class, and Hilbert Hardy class.

The next paper "*On certain subclasses of analytic functions defined by differential subordination*" deals with some classes of analytic functions with negative coefficients, where the author introduces and studies certain subclasses of analytic functions which are defined by differential subordination. Coefficient inequalities, some properties of neighborhoods, distortion and covering theorems, radius of starlikeness, and convexity for these subclasses are presented.

Using the fact that for Toeplitz operators with radial symbols on the disk there are important results that characterize boundedness, compactness, and its relation to the Berezin transform, the author analyzed the relationship between the boundary behavior of the Berezin transform and the compactness of  $T\varphi$ , when  $\varphi \in L^2(\Omega)$  is essentially radial and  $\Omega$  is a multiply-connected domain.

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