Abstract and Applied Analysis

Special Issue on

Analytic and Harmonic Univalent Functions

CALL FOR PAPERS

The classical theory of analytic univalent functions is one of the oldest and beautiful subjects in geometric function theory. It was born around the turn of the twentieth century and has remained an active field of current research. A famous problem in this field was the Bieberbach conjecture posed in 1916 on the size of the moduli of the Taylor coefficients, which was affirmatively settled by de Branges in 1985. Toward its resolution, the conjecture inspired the development of ingenious mathematical tools with important influence, including Lowner's parametric representation method, the area method, Grunsky inequalities, and methods of variations.

The study of planar harmonic univalent mappings, initially by differential geometers in the representation of minimal surfaces, has gained great interest as an active area of research in geometric function theory after the seminal 1984 paper by Clunie and Sheil-Small. It lays the foundation for the study of harmonic univalent mappings over the unit disk as a generalization of analytic univalent functions. Although analogues of the classical growth and distortion theorems, covering theorems, and coefficient estimates are known for suitably normalized harmonic univalent mappings, still many fundamental questions and conjectures remain unresolved in this area. There is a great expectation that the "harmonic Koebe function" will play the extremal role in many of these problems, much like the role played by the Koebe function in the classical theory of analytic univalent functions.

This special issue will publish original articles as well as review articles in the classical theory of analytic univalent functions, harmonic univalent functions, and their connections to produce deeper insights and better understanding.

Potential topics include, but are not limited to:

- Univalent and multivalent analytic functions
- Differential subordination and superordination
- Entire and meromorphic functions
- Geometric function theory in several complex variables
- Harmonic univalent functions
- Quasiconformal mappings

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