東北大学大学院情報科学研究科
純粋・応用数学研究センター

情報数理談話会のお知らせ１

日　時： 2016 年 12 月 14 日（水）14:40 — 15:40
　　　　　(会場にお茶を用意しております)

場　所： 東北大学大学院情報科学研究科棟 2 階大講義室

講演者： 李 銘 氏（東北大学大学院情報科学研究科）

題　目： Differential subordination and geometric function theory

備　考： この情報数理談話会は課程博士予備審査会を兼ねています

[概 要] In 1916, Bieberbach conjectured that $|a_n| \leq n,\ n = 2, 3, \ldots,$ for an analytic univalent function on the unit disk $\mathbb{D}$ in the complex plane with Taylor series of the form $f(z) = z + \sum_{n=2}^{\infty} a_n z^n$. Before de Branges solved finally this conjecture in 1984, many researchers in various areas had tried to prove or disprove the statement. One of the first approaches was to examine geometric classes of above-normalized univalent functions $f(z)$ such as convex, starlike or spirallike functions. In this talk, I will present some new results for these geometric functions. We investigated the upper and lower bound of the functional $||a_{n+1}| - |a_n||$ for the classes of convex functions, spirallike functions. From the differential subordination version, we find a way to get $\gamma > 0$ such that the condition $|\Im[zf''(z)/f'(z)]| < \gamma$ implies that f is starlike.

情報数理談話会のお知らせ 2

日　時： 2016 年 12 月 14 日（水）16:00 — 17:00
　　　　(会場にお茶を用意しております)

場　所： 東北大学大学院情報科学研究科棟 2 階大講義室

講演者： Pritta Etriana Putri 氏 (東北大学大学院情報科学研究科)

題　目： From Sequences to Matrices, the Lagrange Identity, and Generalizations of Hadamard Matrices

備　考： この情報数理談話会は課程博士予備審査会を兼ねています

[概 要] The Lagrange identity is a consequence of a multiplicative operation in Octonion algebra, which is an algebra obtained from Cayley-Dickson process. Moreover, it is known that the Lagrange identity can be interpreted as a norm and a determinant. Furthermore, the relation between Lagrange's identity and the ring homomorphism SDet is investigated. On the other hand, we are also interested in investigating the complementary sequences. There are many studies that are related to the classes of complementary sequences. Two of them are known as T-sequences and base sequences. It is important to know that the existence of T-sequences implies the existence of Hadamard matrices. Also, C.H. Yang showed that the existence of base sequences implies the existence of T-sequences. He used the Lagrange identity as a key on proving his theorem. In this talk, we will give a generalization of Yang's result.

ホームページ：
http://www.math.is.tohoku.ac.jp/research/colloquium.html