INFORMATION
ON THE NEW CONTRIBUTIONS OF DOCTORAL THESIS
(Information will be posted on the Website)

Title: **Operator convex functions, matrix inequalities and some related topics**
Concentration: Mathematical Analysis. Code No.: 62.46.01.02
PhD student: Vo Thi Bich Khue
Course: 2 (2015-2018)
Advisors:
           1. Advisor 1: Assoc. Prof. Dr. Dinh Thanh Duc
           2. Advisor 2:   Dr. Dinh Trung Hoa
Institution: **Quy Nhon University**

NEW CONTRIBUTIONS OF THE THESIS
1. The author defined new classes of operator (p, h)-convex functions and operator (r, s)-convex functions, studied their properties and proved some well-known inequalities for them (Jensen inequality, Hansen-Pedersen inequality, Rado inequality and the inequality for index set functions).
2. The author provided a series of equivalent conditions for a function to be operator (p, h)-convex and (r, s)-convex functions, respectively.
3. The author proved a generalized reverse arithmetic-geometric mean inequality for general matrix means in sense of Kubo-Ando.
4. The author proved several reverse norm inequalities for the matrix Heinz mean.
5. The author established a new characterization of the arithmetic mean by an inequality involving unitarily norms, obtained the "in-sphere property" for matrix means with respect to unitary invariant norm and Hilbert Schmidt norm. Furthermore, the author also showed that the matrix power mean satisfies the in-sphere property with respect to the Hilbert-Schmidt norm.

All results in the thesis are original and essential contributions to the research topics on operator functions and matrix inequalities. Results are meaningful and receive attention from researchers in the research field of the dissertation.

Binh Dinh, March 10th, 2018
Advisors   **PhD Student**

Assoc. Prof. Dr Dinh Thanh Duc   Vo Thi Bich Khue