國 立 政 治 大 學 應 用 數 學 系 演 講

Department of Mathematical Sciences, National Chengchi University

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Speaker: 謝世峰教授 (國立台灣師範大學數學系)

Title: The orthogonal flows for orthogonal iteration

Time: 16:10 - 17:00, Monday, December 7, 2020

Venue: Room 070221, 2F, Zhi Xi Building(志希樓 2 樓 e 化教室)

Refreshment: Refreshments will be served in the Faculty Lounge 30 minutes before the talk.

Abstract

In the field of scientific computation, the orthogonal iteration plays an essential role in computing the invariant subspace corresponding to the largest k eigenvalues. In this paper, we construct a flow that connects the sequence of matrices generated by the orthogonal iteration. Such a flow is called an orthogonal flow. Besides, we also show that the orthogonal iteration forms a time-one mapping of the orthogonal flow. By using a suitable change of variables, the orthogonal flow can be transformed into a Riccati differential equation (RDE). Conversely, an RDE also can be transformed into a flow that can be represented by the orthogonal flow multiplied by an orthogonal matrix.

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