

Colloquium

Finding the Perron pair of an irreducible nonnegative tensor and some applications

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地 點：應用數學系多媒體教室（理 408 室）

摘 要：

In this talk, I will introduce an inverse iterative method for computing the Perron pair of an irreducible nonnegative third order tensor. The method involves the selection of a parameter θ_k in the k th iteration. For every positive starting vector, the method converges quadratically and is positivity preserving in the sense that the vectors approximating the Perron vector are strictly positive in each iteration. It is also shown that $\theta_k = 1$ near convergence. The computational work for each iteration of the proposed method is less than four times (three times if the tensor is symmetric in modes two and three, and twice if we also take the parameter to be 1 directly) that for each iteration of the Ng – Qi – Zhou algorithm, which is linearly convergent for essentially positive tensors.