SFB–Seminar

Am Montag, den 25.11.1996 finden folgende Vorträge statt:

Nonnegative matrices and M–matrices

R. Nabben

Der Vortrag beginnt um 16:00 c.t. Uhr im Raum V2-205.

Abstract

Many mathematical problems which can be described by matrices lead to nonnegative matrices or M–matrices. For example problems in graph theory, stochastics, numerical solution of PDEs etc. In this lecture we give some new properties of nonnegative matrices and M–matrices. In particular, we consider eigenvalues of nonnegative matrices. In many cases the second largest eigenvalue is of more interest than the largest one (e.g. connectivity of finite graphs, and Markov chains).
Here we give a new bound for the second largest eigenvalue of nonnegative matrices using spectral radii of principal submatrices. Furthermore, we establish upper bounds for the maximal spectral radius of principal submatrices of nonnegative matrices. Using this bounds we show that our inequality for the second real eigenvalue of the adjacency matrix of a connected regular graph improves a well known Cheeger–type bound for the second eigenvalue proved by Alon and Dodziuk.
The problem of characterizing those nonnegative matrices whose inverses are M–matrices is know as the inverse M–matrix problem. Here we consider the new class of (generalized) ultrametric matrices which are based on an ultrametric metric. We show that these nonnegative matrices are inverse M–matrices.

Linear Algebraic Groups and Related Structures

U. Rehmann

Der Vortrag beginnt um 17:30 s.t. Uhr im Raum V2-205.

Abstract

The theory of linear algebraic groups over arbitrary fields will be discussed. Related structures in this sense are structures like Lie algebras, quadratic forms, Azumaya algebras etc. Some classical and new results as well as open problems in these fields will be mentioned.

Es gibt Kaffee und Tee im Blauen Salon schon um 15:30 Uhr.

G. Röhrle