ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

16. Applications

1991 MS Classification: 15A99, 92D25, 92D40
Logofet, Dmitrii O.
When matrix "flowers" help proving theorems on stability
Several notions of matrix stability are defined in applications that are stronger than the classical Lyapunov stability. Logical inclusion/intersection relations among corresponding subsets of real nxn-matrices are nontrivial and many lack constructive characterizations. Therefore, even a visual logical diagram of those relations, the matrix "flower", helps proving particular statements and defining/characterizing new notions, i. e. "growing" some new "petals" of the "flower". Recent examples: the notion of "structural openness" for matrices, and the notion of DaD-stability, both dealing with uncertainties occurring in multispecies community dynamics and modelling global biogeochemical cycles. Reference: D. O. Logofet, Structurally open subsets of stable matrices, Doklady Mathematics, 54 (1996), 529-530; Svicobians of compartment models and DaD-stability of the Svicobians, Doklady Mathematics, 57 (1998), 3.