

Adjacency algebra of a graph

A. Satyanarayana Reddy

(Shiv Nadar University, Dadri, India, satya8118@gmail.com)

Let $M_n(\mathbb{F})$ denote the set all $n \times n$ matrices with coefficients from the field \mathbb{F} . If $A \in M_n(\mathbb{F})$, then $\mathbb{F}[A]$ denote the set of all polynomials in A with coefficients from \mathbb{F} is a subalgebra of $M_n(\mathbb{F})$.

If A is the adjacency matrix of a graph X , then we write $\mathbb{C}[A]$ as $\mathcal{A}(X)$ and is called the *adjacency algebra* of X . Many properties of the graph X can be known from $\mathcal{A}(X)$. Many graphs are defined by using the properties of $\mathcal{A}(X)$. In this seminar, we will discuss various families of graphs like distance transitive, distance regular, strongly regular, walk regular, distance polynomial graphs etc in terms of their adjacency algebras.

References

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