

1135-VQ-649

Mehmet Gumus* (mzg0083@auburn.edu). *A Generalization of Additive D -Stability.*

A real, square matrix A is said to be additive D -stable if $A + D$ is stable for any nonnegative diagonal matrix D . This type of matrix stability plays an important role in various applied problems such as diffusion models of biological systems and neural networks. In this talk, we generalize the concept of additive D -stability and introduce a new notion called additive $H(\alpha)$ -stability, with α being a partition of the index set $\{1, \dots, n\}$. We present several new results concerning the relationship between additive $H(\alpha)$ -stability and other types of matrix stability involving α . Some special cases of additive $H(\alpha)$ -stability are further investigated. In particular, we provide a sufficient condition for additive D -stability and discuss an extension of this result. (Received September 11, 2017)