



(Konuşmacı)

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(Başlık)

Title: Algebraic Structure of Generalized Splines

(Özet)

Abstract: Given a commutative ring R with identity and a finite graph $G = (V, E)$, an edge labeling of G is a function that labels each edge of G by an ideal of R . The pair (G, α) is called an edge labeled graph. A generalized spline on an edge labeled graph (G, α) is a vertex labeling $f \in R^{|V|}$ such that, for each edge uv , the difference $f_u - f_v \in \alpha(uv)$. The set of all generalized splines on (G, α) over R is denoted by $R_{(G, \alpha)}$. The set $R_{(G, \alpha)}$ has a ring and an R -module structure.

In this talk, we first give basic definitions and properties of generalized splines. We also explain the motivation of the theory. Then, we focus on the module structure of $R_{(G, \alpha)}$ and show the existence of a special type of basis, called flow-up basis, over principal ideal domains. Finally, we present a basis criteria for $R_{(G, \alpha)}$ over greatest common divisor domains in case of G is a cycle, a diamond graph or a tree.

This is a joint work with Professor Selma Altınok Bhupal.