Esma Baran, Çankırı Karatekin University

Parametrik Simitli Kodların Sıfırlayan İdealleri

X sonlu cisim üzerinde tam simpleksel simitli çeşitlem olsun. Bu çalışmada, X simitli çeşitleminin Laurent monomlarının parametrelediği alt çeşitlemleri ve bu çeşitlemler üzerinde hesaplanan kodlar ile ilgilenilmiştir. Parametrik çeşitlemlerin sıfırlayan ideallerinin üreteçlerini hesaplamak için yöntemler vereceğiz. Bu yöntemler aracılığıyla, parametrik kodların temel parametreleri hesaplanabilir.

Anahtar kelimeler: Simitli çeşitlem, sıfırlayan ideal, parametrik kod.

Kaynaklar

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Selma Altınok Bhupal, Hacettepe University

Basis Criteria for Generalized Spline Modules

Given an edge labeled graph (G, α), we denote the set of generalized splines on (G, α) over the base ring R by $R_{(G,\alpha)}$. $R_{(G,\alpha)}$ has a ring and an R-module structure. A special type of generalized splines, called flow-up classes, is an important tool to find module bases for $R_{(G,\alpha)}$. In this talk, we first give a combinatorial method to compute the smallest leading entries of flow-up classes. Then we introduce some basis criteria for $R_{(G,\alpha)}$ on certain type of graphs by using the smallest leading entries of flow-up classes.

Özgür İnce, Cumhuriyet University

Characterization of Hilbert functions of homogeneous ideals containing a regular sequence in the polynomial ring

Given any homogeneous ideal I in S, Macaulay proved that there exists a lex ideal L with the same Hilbert Function. As a generalization of Macaulay's Theorem, Clements and Lindstrom proved that homogeneous ideal I in some condition has the same Hilbert function as a lex-plus-powers ideal in S. By the Clements-Lindstrom Theorem, the Eisenbud-Green-Harris (EGH) Conjecture can be stated via lex-plus-powers ideal and so far there exist some results about conjecture.

Halil İbrahim Karakaş, Başkent University

Katlılığı Asal Olan Arf Yarıgrupları

p, m, k, C pozitif tamsayılar, p asal olsun. Katlılığı (multiplicity) m ve kondüktörü (conductor) C olan tüm Arf yarıgruplarının kümesini $\mathcal{S}(m, C)$ ile gösterelim. Bu konuşmada $C > 2p$ ise

$$\psi : \mathcal{S}(p, C) \to \mathcal{S}(p, C + p) \ , \ \psi(S) = (p + S) \cup 0$$

dönüşümünün bire bir örten (bire bir eşleme) olduğu gösterilecektir.

Deniz Mercan, Mimar Sinan Fine Arts University

Nümerik Semigruplar ve Wilf Sanısı

Bu konuşmada cebirsel geometri için önemli konulardan biri olan Wilf sanısı tanıtılacaktır. Konunun daha iyi anlaşılabilmesi adına konuşmanın ilk yarısında nümerik semigruplar ile ilgili gerekli tanımlar verilecek, ikinci yarısında ise Wilf sanısı detaylandırılacaktır.

Samet Sarıoğlan, Hacettepe University

The Syzygy Module on Cycles of a Graph

In this talk, we describe the syzygy module $B_{(G,\alpha)}$ on the cycles of a given edge labeled graph (G, α). We focus on the relations between the generalized spline module $R_{(G,\alpha)}$ and $B_{(G,\alpha)}$. We also introduce edge decomposition operation and give some results on the freeness of the generalized spline module $R_{(G,\alpha)}$ where R is multivariate polynomial ring.

Müfit Sezer, Bilkent University

Modular Coinvariant Rings

We consider a finite dimensional kG-module V of a p-group G over a field k of characteristic p. We study generation and structure of the corresponding coinvariant ring. Some part of this talk is joint with J. Elmer.

Mesut Şahin, Hacettepe University

Evaluation codes on a toric variety

In this talk, we review algebraic methods for studying evaluation codes defined on subsets of a toric variety. The key object is the vanishing ideal of the subset and its Hilbert function. We reveal how invariants of this ideal such as multigraded regularity and multigraded Hilbert polynomial relate to parameters of the code. Time permitting, we share the nice correspondence between subgroups of the maximal torus and lattice ideals as their vanishing ideals.

Nil Şahin, Bilkent University

Arf Rings and Arf Closure

In this talk, we describe Canonical rings and closures, which after Arf's work are called Arf Rings and Arf Closures. After explaining Arf's method to compute the Arf closures, we will introduce an easily implementable algorithm for computing the Arf closure of an irreducible algebroid curve and we will read the multiplicity sequences of branches from their Arf closures.

Nesrin Tutaş, Akdeniz University

Partitions and Arf Semigroups

Partitions of positive integers can be graphically visualized with Young diagrams. They occur in several branches of mathematics and physics, including the study of symmetric polynomials and representations of the symmetric group. The combinatorial properties of partitions have been investigated up to now and we have quite a lot of knowledge.

In this talk, we consider Young diagrams of numerical sets and a characterization of Arf semigroups via their Young diagrams. This characterization allows us to define Arf partition of a positive integer. Here, we exhibit some of the properties of Arf partitions and an algorithm for finding the Arf closure of a numerical set. Besides, we introduce a kind of primitive semigroup decomposition of Arf semigroups using combinatorial properties of partitions.

Emrah Sercan Yılmaz, Boğaziçi University

Finding the Number of Rational Points of Supersingular Curves with Less Information

The zeta function of a curve C defined over a finite field $\mathbb{F}_q$ is the formal power series

$$\exp\left(\sum_{n=1}^{\infty} \#C(\mathbb{F}_{q^n})\frac{T^n}{n}\right).$$

It is known that the zeta function is a rational function, with only the numerator depending on C. The numerator is called the L-polynomial of C, and is therefore equivalent to knowledge of the number of points $\#C(\mathbb{F}_{q^n})$ on the curve over all extensions of $\mathbb{F}_q$.

In general, the L-polynomial of a curve of genus g is determined by g coefficients. We show that the L-polynomial of a supersingular curve of genus g is determined by fewer than g coefficients. We characterize which coefficients are needed.

Our result gives precise information about the number of rational points. We will give some applications of our result to Artin-Schreier curves and Hermitian curves.

Keywords: zeta function, curve, finite field
MSC: 11G20, 14H05