Additional and revised abstracts:

On homological dimensions relative to a weakly Wakamatsu tilting module

Driss Bennis

Joint work with J. R. Garcia Rozas and Luis Oyonarte.
Homological dimensions relative to a semidualizing module C have been subject of several works as interesting extensions of the classicale ones.
Thus natural question arises: Is the condition on C to be a semidualizing module necessary so that the relative homological dimensions preserve their properties?
In this talk we present a recent work showing that the above question has a negative answer. The investigation of this question leads to an extension to the noncommutative case of the known relative homological concepts (weakening the condition of C being semidualizing as well). We prove that indeed they share the principal properties of the classical ones and relate these two new dimensions.

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Additional and revised abstracts:

Krull dimension and unique factorization in Hurwitz polynomial rings

Byung Gyun Kang, Phan Thanh Toan

Let R be a commutative ring with identity and let $RH[x]$ denote the ring of Hurwitz polynomials. In this paper, we study the Krull dimension and the unique factorization property of $RH[x]$. We show in general that $\dim R \leq \dim RH[x] \leq 2\dim R + 1$. When the ring R is Noetherian, we prove that $\dim R \leq \dim RH[x] \leq \dim R + 1$. In this case, a condition for the ring R is also given in order to determine whether $\dim RH[x] = \dim R$ or $\dim RH[x] = \dim R + 1$. We finally show that $RH[x]$ is a unique factorization domain (resp. a Krull domain) if and only if R is a unique factorization domain (resp. a Krull domain) containing all the rational numbers.

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Additional and revised abstracts:

On finiteness of certain graded Ext-modules

Naser Zamani, Ahmad Khojali

Let $R = \oplus_{j\geq 0} R_j$ be a homogeneous Noetherian ring with irrelevant ideal $R_+ = \oplus_{j\geq 1} R_j$. Let M, N be two finitely generated graded R-modules such that M is of finite projective dimension. The previous well known vanishing results on R-modules $H^i_{R_+}(M,N) = \varinjlim_{n\in\mathbb{N}_0} \operatorname{Ext}^i_R(M/(R_+)^n M, N)$ will be improved. Using this result, among other things, we show that whenever the base ring of R is local with maximal ideal $\mathfrak{m}_0$, then $H^i_{R_+}(M,N)$ is Artinian for all $i > s = \operatorname{pd}(M) + \dim(N/\mathfrak{m}_0 N + \Gamma_{\mathfrak{m}_0 R}(N))$ and is tame for $i = s$.

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