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SEMINARIO DE GEOMETRÍA ALGEBRAICA

Jueves 23 de enero de 2014, **13:00**, Seminario 238

Emmanuel Pola

Universidad de Yaounde I, Camerún

Impartirá la conferencia

GRÖBNER BASES OVER RINGS OF KRULL DIMENSION LESS OR EQUAL TO 1

Resumen.
Recall that a ring $\mathbf{R}$ is said to be Gröbner if for every $n \in \mathbb{N}$, every finitely generated ideal $\mathbf{I}$ of $\mathbf{R}[\mathbf{X_1}, \ldots, \mathbf{X_n}]$ has Gröbner Bases according to every monomial order on $R[X_1, \ldots, X_n]$; it means that the ideal $\mathbf{LT}(\mathbf{I})$ generated by the leading terms of the elements of $\mathbf{I}$ is finitely generated. The Gröbner ring conjecture says that a valuation ring is Gröbner if and only if its Krull dimension is ≤ 1. A partial solution to this conjecture was given by Lombardi, Schuster and Yengui (in "The Gröbner ring conjecture in one variable, Math. Zeitschrift. DOI : 10.1007/s00209-011-0847-1"). And finally, Yengui proved that a valuation domain $\mathbf{V}$ is of Krull dimension ≤ 1 if and only if fixing a lexicographic monomial order, every finitely generated ideal I of $\mathbf{V}[\mathbf{X_1}, \ldots, \mathbf{X_n}]$ has Gröbner Bases(The Gröbner Ring Conjecture in the lexicographic order case. Math. Z. DOI 10.1007/s00209-013-1197-y). Our Concern here are the two following Questions : Question A : Let $\mathbf{R}$ be a ring with Krull dimension ≤ 1. Is it true that every finitely generated ideal $\mathbf{I}$ of $\mathbf{R}[\mathbf{X_1}, \ldots, \mathbf{X_n}]$ has Gröbner Bases ? Question B : Let $\mathbf{V}$ be a valuation ring(it means that $\forall a, b \in \mathbf{V}$, a divides b or b divides a). Is it true that every finitely generated ideal $\mathbf{I}$ of $\mathbf{V}[\mathbf{X_1}, \ldots, \mathbf{X_n}]$ has Gröbner Bases if and only if $\mathbf{V}$ is of Krull dimension ≤ 1 ?