Coloquio IMAFI
Instituto de Matemática y Física
Universidad de Talca
Camino Lircay S/N, Campus Norte, Talca-Chile

From regulous to rational bounded functions

Victor Delage*
Institut de recherche mathématique de Rennes,
Université de Rennes 1, Francia

Abstract. A rational function (quotient of polynomials from $k[X_1, ...X_n]$) is called regular when it lies in a regular ring. For an algebraically closed field k, a regular function has to be polynomial, but when studying the real case, some new function appears: the ones which denominators have no zero, like $\frac{1}{1+X^2}$. Here the regular functions extends quite naturally to the regulous fonctions: when the denominator may have some zero, but when it happens, so does the numerator "in a stronger way" and the function is still continuous. Regulous have some very interesting properties, both algebraic and geometric, like nœtherianity of the topology, radical principality or Cartan's theorems A and B. Arising question is then whether bigger function rings may keep interesting properties; and we propose to loosen the continuity hypothesis to make it a bounded hypothesis; and see what happens.

*e-mail: victor.delage@univ-rennes1.fr