1049-52-209   **Francisco Santos*** (`francisco.santos@unican.es`), Dept. Matemáticas, Estadística y Computación, Universidad de Cantabria, 39005 Santander, Spain. *52 years of the Hirsch conjecture.*

The Hirsch conjecture, stated in 1957 a letter by Warren M. Hirsch (1920–2007) to George Dantzig (1914–2005) says that the graph of a d-polytope with n facets cannot have diameter bigger than $n - d$.

Despite being one of the most fundamental open problems in polytope theory, both from a theoretical and applied point of view, our knowledge about it is shamefully scarce. Suffice it to say that no polynomial upper bound is known for the diameters of polytopes, when the conjecture says they are linear.

In contrast, very few polytopes where the bound $n - d$ is achieved are known. In fact, only one such example is known, leaving aside "trivial cases" and polytopes that can be derived from it by more or less standard constructions.

In this talk I will briefly revise the history of the conjecture, focusing on the side of constructions and "partial counterexamples". (Received March 04, 2009)