On the universal Gröbner basis of toric ideals of graphs

Apostolos Thoma

University of Ioannina (Grècia)

To any graph G can be associated a toric ideal I_G. In this talk some recent joint work with Enrique Reyes and Christos Tatakis will be presented on the toric ideal of a graph. A characterization in graph theoretical terms of the elements of the Graver basis and the universal Gröbner basis of the toric ideal of a graph will be given. The Graver basis is the union of the primitive binomials of the toric ideal and the universal Gröbner basis of an ideal is a Gröbner basis with respect to all term orders simultaneously. Finally, examples of graphs will be presented for which the true degrees of their circuits are less than the degrees of some elements of the Graver basis.