

### ΠΑΝΕΠΙΣΤΗΜΙΟ ΙΩΑΝΝΙΝΩΝ

# ΤΜΗΜΑ ΜΑΘΗΜΑΤΙΚΩΝ

Εβδομαδιαίο Σεμινά οιο

# IDEALS AND GRAPHS

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To any graph G we can associate an ideal  $I_G$  in the polynomial ring  $k[x_1, \ldots, x_n]$ , where n is the number of edges in the graph G. In this talk we will try to understand this ideal and we will characterize, in graph theoretical terms, a generating set for this ideal. This set is called the Graver basis of the ideal and usually is not a minimal generating set. But it contains several important subsets of the ideal, like: all the Markov bases (minimal generating sets), the circuits, all reduced Groebner bases and of course the Universal Groebner basis.

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