

# سخنرانی عمومی ریاضی

## h-vectors and f-vectors of simplicial complexes

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# h-vectors and f-vectors of simplicial complexes

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Simplicial complexes are combinatorial objects at the intersection of many fields of Mathematics including algebra and topology. The f-vectors and h-vectors of simplicial complexes are important subjects in combinatorics and commutative algebra. In the past decades there were many researchers who worked on this subject. Suppose that  $\Gamma$  is a class of simplicial complexes. Is it possible to characterize the f-vectors and h-vectors of the simplicial complexes in  $\Gamma$ ? This question has been studied for the classes of all complexes, Cohen-Macaulay complexes, Leray complexes,  $r$ -colorable complexes, complexes having a given sequence of Betti numbers and some other classes. In this talk, we will give a short survey on Kalai's conjecture and the recent results on this conjecture.