

Speaker: Hanfeng Li

Title: Relative Sylvester rank functions

Abstract: For a unital ring R , a Sylvester rank function assigns a nonnegative real number (the rank) to each rectangular matrix over R , or equivalently, to each finitely presented left R -module. The Sylvester rank functions play a vital role in the proof of Kaplansky's direct finiteness conjecture for sofic groups and Jaikin's recent work on Lück approximation for complex coefficients. I will discuss how to extend each Sylvester rank function to a bi-variable one for pairs (A, B) with A being a submodule of any left R -module B , and give some applications of this extension.