

Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, April 21

Speaker: Papa Sissokho, Illinois State University

Nonnegative integer solutions of a system of linear equations

Let A be an $n \times m$ matrix with integer entries. Let S denote the set of all solutions x to the equation $Ax = 0$, where x is a vector with nonnegative integer entries. The Hilbert basis of S is the minimal subset H of S with the property that any solution x in S can be written as a nonnegative integer combination of solutions in H . Since computing H is NP-hard for any $n > 0$, one is interested in finding a geometric characterization of H . For $n = 1$, we have recently given such a characterization. In this talk, we plan to discuss some on-going work for the case $n > 1$.

