

Title:

A problem in Diophantine geometry : how far can you see in a forest?

Abstract :

We will be answering the following question raised by Christopher Bishop :

'Suppose we stand in a forest with tree trunks of radius $r > 0$ and no two trees centred closer than unit distance apart. Can the trees be arranged so that we can never see further than some distance $V < \infty$, no matter where we stand and what direction we look in? What is the size of V in terms of r ?'

The methods used to study this problem involve Fourier analysis and sharp estimates of exponential sums.