

YMC2004 TALK ABSTRACT

Sucheta Soundarajan

The Ohio State University

Title: m-paths of the $3x+1$ problem

Description:

The $3x+1$ conjecture is as follows: Consider the function $f(x)$ defined on the set of positive integers not divisible by 2 or 3, with $f(x)=3x+1/(2^k)$, where k is the largest integer such that $f(x)$ is still an integer. It is believed that for every positive number n , there is some number j such that j applications of f to n produces the value 1. An m -path of a number n is the sequence of m numbers k_1, \dots, k_m such that k_i is the value of k in the function definition in the i -th iteration of the function originally applied to n . The research that my partner and I have been working on is looking at '\bad\' m -paths: m -paths which could potentially correspond to a number n which might never reach 1.