Insalate di Matematica
presents

Coloring the numbers, and other funny things to do

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Abstract

Is it true that for every finite coloring of the natural numbers there is an infinite set having all finite sums of the same color?

This problem has been an outstanding open conjecture for a long time, until Neil Hindman in 1974 answered it positively. Soon afterward, Galvin and Glazer give a second proof of this result that involved tools from logic and model theory. These tools have started a new line of research in combinatorics that have revealed to be very proficuous, leading to other famous results such as Carlson's Theorem in 1988, and Gowers' Theorem in 1992, and having a major impact across many fields of mathematics, such as functional analysis, ergodic theory, topological dynamics, logic and algebra.

In this talk, I will go though the history of these famous theorems, and briefly present some recent lines of research in the field.

Keywords:

Combinatorics · Ramsey theory · Logic and model theory · semigroups and monoid

"Obvious" is the most dangerous word in mathematics. - Eric Temple Bell