Pseudo-polynomials

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Vivian Kuperberg
Stanford University

Abstract

Every polynomial f with integer coefficients has the following useful property: for every integers n and k, $f(n + k)$ is congruent to $f(k) \bmod n$. To say this a different way, f is well-defined $\bmod n$ for every n. This talk will be about pseudo-polynomials, which are arbitrary functions on the integers that satisfy this same property. All polynomials are pseudo-polynomials, but it turns out there are many more: for example, $\lfloor e \cdot n! \rfloor$ is a pseudo-polynomial. We'll discuss the history of pseudo-polynomials and certain outstanding open questions about them!