



HARVARD UNIVERSITY
17 Oxford Street
Cambridge, MA 02138

Mathematical Picture Language Seminar



Tuesday, January 30

4:30 p.m. Boston time

Jefferson 256

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Inverse theorems and approximate structure

Abstract: We call a function f linear if $f(x+y) = f(x) + f(y)$ holds for all x, y . It is natural to call f "99% linear" if instead, this identity holds for *most* pairs (x, y) ; say, 99% of pairs. Similarly, we could say f is "1% linear" if this identity holds 1% of the time. A natural question is then: what can we say about the structure of "99% linear" or "1% linear" functions? Are they always just perturbations of true 100% linear functions, or are there other examples?

Given almost any algebraic definition, you can similarly ask about its approximate variants, and if you can prove a strong positive statement, it tends to have applications. In particular, I will discuss how 1% linear functions relate to the Polynomial Freiman-Ruzsa conjecture, and how 1% polynomial functions relate to the Inverse Theorem for the Gowers norms.



Zoom QR Code & Link:

<https://harvard.zoom.us/j/779283357?pwd=MitXVm1pYUIJVzZqT3lwV2pCT1ZUQTog>

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