SUMS PRESENTS

Mathematical Lightning Talks

A monthly event centered around short talks to introduce mathematical topics to audiences of all backgrounds.

These are entirely student-run, so anyone is welcome to sign up to give a talk, and everyone is welcome to attend! Food and refreshments are provided, and there is also a raffle for a different math-related book every month.

$$\widehat{f}(S) = \langle f, \chi_S \rangle = \mathop{\mathbf{E}}_{x \sim \{-1,1\}^n}[f(x)\chi_S(x)] \qquad \mathbf{NP} = \mathbf{PCP}[\mathcal{O}(\log n), \mathcal{O}(1)]$$

This Month's Topics

A Brief Introduction to Boolean Fourier Analysis

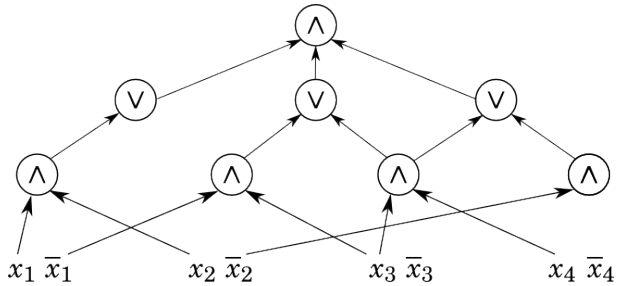
This talk will introduce the technique of Boolean Fourier Analysis and its many uses in theoretical Computer Science. A proof of the famous Arrow's Theorem will be presented, which shows that certain kinds of voting systems are never feasible.

Suggested background: Some linear algebra may be useful, but is in no way necessary.

The PCP Theorem and Hardness of Approximation

This talk will introduce the tool of Probabilistically Checkable Proofs, a concept which is able to unite seemingly disparate views of certain kinds of problems in the field of computational complexity. A conceptual overview of the most famous PCP-based theorems will also be presented.

Suggested background: Familiarity with the basics of computational complexity will be useful, but is not required.



Friday, May 26th
5PM – 7PM, AP&M 7421

Sign up to give a future talk at `http://sums.ucsd.edu/talks.html`.