Points and Lines

Instants in the quiet, small sharp stars,
Pierce my spirit with a thrust whose speed
Baffles even the grasp of time.
Oh that I might reflect them
As swiftly, as keenly as they shine.
But I am a pool of waters, summer-still,
And the stars are mirrored across me;
Those stabbing points of the sky
Turned to a thread of shaken silver,
A long fine thread.

— Aldous Huxley

Paul Erdős, the best of our breed,
Knew a life that no other could lead.
  A wandering scholar,
  Who'd pledge his last dollar,
He lived ev'ry moment on speed.

— Martin Huxley

The Trivial Notions Seminar
Proudly Announces

Incidence Problems in the Plane
A talk by

Nathan Kaplan

How many incidences can we have between n points and m lines in the plane? Given n points in the plane, how many distinct distances must occur between them? What is the largest number of pairs of points that can be distance one apart?

The answer to the first of these problems is given by the famous Szemerédi-Trotter Theorem. We will describe several different proofs of this result and give an application to number theory. We will then talk about the second of these problems, the Erdős Distinct Distance Problem, which was recently almost completely solved by Guth and Katz using the 'polynomial method'. We will also discuss some related unsolved problems, such as the last of these three, the Erdős Unit Distance Problem. We will see several different techniques that are used in this area, including ideas from graph theory, combinatorics, algebra, and ham sandwiches.

Thursday February 9$^{\text{th}}$, at 2:00 pm
Science Center 310