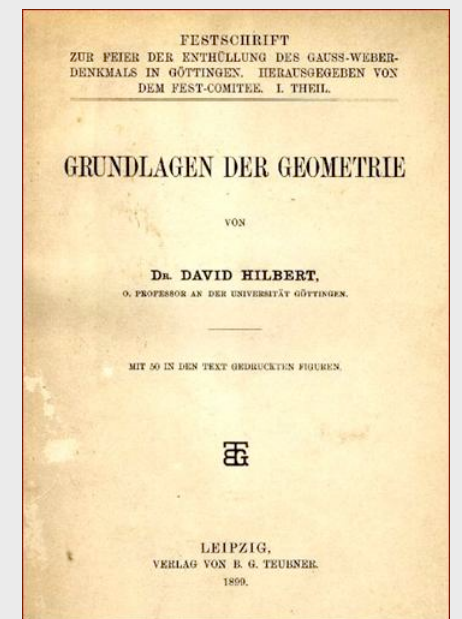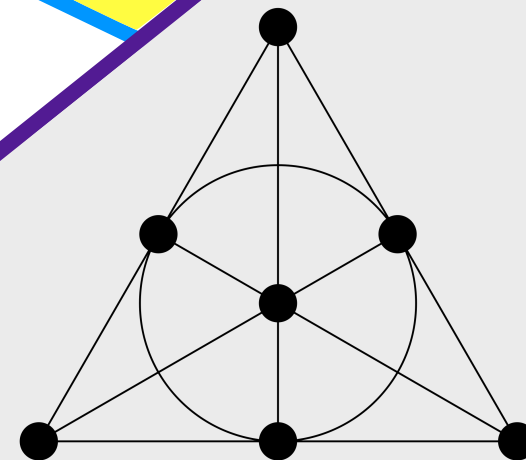# Radical Pi presents:

Projective Planes

by Professor Jim Fowler

Given a field (a number system), we can build a "geometry"—something with points and lines. For instance, starting with the field of real numbers, we consider ordered pairs of reals, and we get the Cartesian plane.

What if we instead started with the geometry? Could we, from the points and lines, recover a field? Sometimes, yes! The geometries we start with will be "projective geometries" where any two lines meet, maybe "at infinity." How do we then get a field? Commutativity of multiplication— among the other axioms for a field—are encoded as gloriously complicated diagrams of points and lines. Desargues' theorem and Pappus' theorem show up to save the day.

Wednesday, October 2, 5 PM
Undergraduate Math Study Space (MA 052)
Free pizza!

FESTSCHRIFT
ZUR FEIER DER ENTHÜLLUNG DES GAUSS-WEBER-DENKMALS IN GÖTTINGEN. HERAUSGEGEBEN VON DEM FEST-COMITEE. I. THEIL.

GRUNDLAGEN DER GEOMETRIE

VON

Dr. DAVID HILBERT,
O. PROFESSOR AN DER UNIVERSITÄT GÖTTINGEN.

MIT 50 IN DEN TEXT GEDRUCKTEN FIGUREN.

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