

Mathematics Colloquium Talk

Friday, November 14, 2003, 3:00 p.m.
Room 111 Cowley Hall

GRAPH THEORY IS CHILD'S PLAY: THE GAME OF SPROUTS

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Abstract: Sprouts is a two player pencil and paper game popularized by John Horton Conway. Its rules are simple and can be understood by children, yet its strategy is complex enough to have interested Conway and others.

Begin with n dots on a piece of paper. Each player in turn either joins two dots with a continuous arc or joins a dot to itself. She then adds a new dot on the arc just created. There are only two additional restrictions: one is that no two arcs may cross. The other is that no dot may be used which already has three arcs attached to it. The last player able to make a legal move wins.

We will explore this game using the tools of planar graph theory. We will see that an n -dot game always lasts between $2n$ and $3n-1$ moves. We will also explore some other aspects of the game, as time allows.