Swarthmore College
Department of Mathematics and Statistics
COLLOQUIUM

Stephen B. Robinson

Professor of Mathematics

Wake Forest University

The Game of Hex and its Surprising Implications

Hex is a simple two-player game that is well known to both mathematicians and non-mathematicians. Two players, Blue and Red, take turns placing tiles on a board until one of them has created a path connecting their sides. East and West for Blue, and North and South for Red.
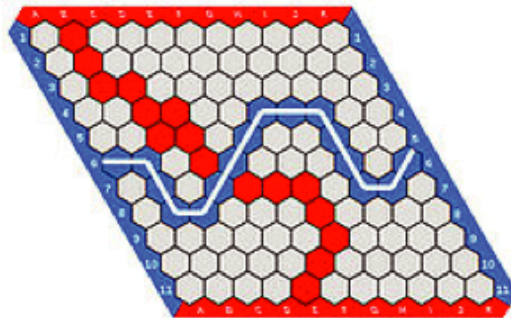
Unlike some other familiar games, such as tic-tac- toe, Hex is guaranteed to have a winner. This is known as The Hex Theorem. It turns out that this simple game, and its associated theorem, captures some deep and beautiful mathematical ideas that have been fundamental to mathematical progress over the last century. In particular, as David Gale demonstrated in a 1980 article in the Mathematical Monthly, The Hex Theorem is equivalent to the Brouwer Fixed Point Theorem in the plane. The main goal of this talk is to discuss the connection between these two theorems. The proofs are accessible to anybody who can play the game, draw some pictures, and contemplate continuity. Given time I will mention further implications that are near and dear to my heart.

Tuesday, April 10th   **Science Center 199**

Refreshments 4:15 ~ Talk 4:30