1073-05-13 **Risto Atanasov**, **Mark Budden**, **Joseph DiNatale**, **Lindsay Erickson** and **Robert Fenney***, Department of Mathematics, University Hall 297, 11935 Abercorn Street, Savannah, GA 31419, and **Maxwell Hostetter**, **Joshua Lambert** and **Warren Shreve**. *Analysis Of Winning Strategies For Playing On Wheel Graphs.* Preliminary report.

Nim provides an example of an impartial game studied in combinatorial game theory. Nim involves two-players with positions defined by the number of weights on three or more poles. We define moves by removing the weights from a distinct pole with the winner taking the last weight. Fukuyama extended Nim to graph theory by playing a similar game on weighted graphs. In Nim on graphs, we begin by placing a position indicator piece on a vertex and players decrease the weight of an incident edge to a nonnegative number. A player loses when all incident edges have weight zero. We focus on winning strategies for Nim on graphs. In particular, we shall completely classify the winner for Nim on a wheel with n-spokes. (Received June 3, 2011)