1077-VL-846   **Hong Lien T. Tran*** (`htran14@students.kennesaw.`). *Domination and Independence on the Triangular Honeycomb Chessboard.* Preliminary report.

Puzzles on the chessboard have long been studied by mathematicians. *Across the Board: The Mathematics of Chessboard Problems* by John Watkins is an indispensable collection of mathematically themed chessboard problems. We do not restrict ourselves to the standard 8×8 chessboard. Generalizations are quickly made to the square board of sides other than $n = 8$, $m \times n$ rectangular boards and other variant surfaces. Chessboard problems are most frequently set in the context of Graph Theory. Two classic problems in Graph Theory that appear again and again are those of dominating sets of minimum cardinality and independent sets of maximum cardinality. For chessboards the question of a minimum dominating set transforms into how to threaten or occupy every square on the board with the fewest pieces. Maximum independent sets become the problem of how to place the maximum number of non-attacking pieces. Our project explores these two combinatorial problems on the variant triangular honeycomb chessboard for the rook, bishop, knight and king. (Received September 13, 2011)