

1128-05-308

Shannon Overbay* (overbay@gonzaga.edu), Gonzaga University, 502 E Boone Ave, Spokane, WA 99205. *Toroidal Zero-Divisor Graphs and Book Embeddings.*

An n book is formed by taking a line in 3-space (the spine) together with n half-planes (the pages) joined together at the spine. A graph is embedded in a book by placing the vertices along the spine and each edge on a single page of the book so that no two edges cross. The book thickness of a graph is the smallest n for which the graph has an n -book embedding. The zero-divisor graph of a commutative ring R is formed by taking the nonzero zero-divisors of R as the vertices and joining two vertices x and y with an edge if and only if $xy = 0$. Chiang-Hsieh, Smith, and Wang have classified all 90 non-isomorphic rings having zero-divisor graphs of genus at most one. We further categorize these graphs in terms of book thickness. (Received February 28, 2017)