Method to Construct All 2-Sided Strip Polyominoes

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he field of combinatorial geometry studies the ways in which geometric objects can be combined. This work is devoted to the study of a subfamily of square animals (or polyominoes), that is, shapes made by connecting a certain number of equal-sized squares, or cells, each joined together with at least one other square along an edge. The study of this type of structure is of special interest to problems in physics and chemistry, such as branching polymers. The enumeration of polyominoes possessing certain characteristics has attracted the attention of many scholars in the last decades. In this line, we present a method to construct all non-isomorphic 2-sided strip polyominoes, that is, all those square animals where every cell shares at most two edges with its adjacent cells. This construction can also be used to determine the exact number of these square animals formed using n cells.

Keywords: square animal, enumeration, 2-sided strip polyomino