

UM Physics Department

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Title: Adinkra Height Yielding Matrix Numbers: Eigenvalue Equivalence Classes for Minimal Four-Color Adinkras

Abstract:

An adinkra is a graph-theoretic representation of spacetime supersymmetry. Minimal four-color valise adinkras have been extensively studied due to their relations to minimal 4D, $\mathcal{N} = 1$ supermultiplets. Valise adinkras, although an important subclass, do not encode all the information present when a 4D supermultiplet is reduced to 1D. Previously a mathematical construction, HYMNs (Height Yielding Matrix Numbers), to encode additional information was presented in a few examples. Extension of the previous work for non-valise adinkras, provide a complete classification of "node-lifting" for all 36,864 valise adinkras associated with the Coxeter group BC_4 . Some examples of nonminimal four-color, minimal five-color, and minimal six-color adinkras, properties of the HYMNs are also explored.