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**Leah A. Balay-Wilson\*** (lbalaywi@smith.edu), **Yixin Bao** and **Hana Foe**. *Exploring Adinkras and Clifford Algebra representations.*

In this research, we constructed a family of graphs that we called oriented chromotologies. The adjacency matrices of these graphs correspond to representations of  $Cl(0, m)$ , a subset of the Clifford algebras. As these Clifford algebra representation matrices can be large, the graphs can significantly shorten computational time.

A different family of graphs called adinkras have previously been used for the same purpose with  $Cl(n, 0)$ . Prior research has linked adinkras to set error-correcting codes. We show a method of deriving oriented chromotologies from the same types of codes used for adinkras, and in fact a more general set of error-correcting codes. We then define a series of operations on oriented chromotologies that correspond to specific basis changes in the adjacency matrices. This allows oriented chromotologies to serve as a graphical method for showing isomorphism between representations. We then present a series of novel proofs to legitimize these operations. (Received September 16, 2014)