Adinkras in Super Yang-Mills Theory

Gabriel Yerger[1], John Caporaletti[1], Yuqin Wang[1], Devin Bristow[2], Eric Johnson-Greer[2], Aleksander Cianciara [3], Shane Weiner[3], Jude Bedessem[4], Jeth Arunseangroj[5], Aaron Beisaw[6]

Abstract

This paper seeks to examine several extended SUSY Theories on the 0-Brane by obtaining the L and R matrices, generate the corresponding adinkra, and studying their correlators. The 10D N=1 Maxwell Theory is investigated, and the SUSY algebra is studied analytically and verified with previous work. The 4D N=4 Yang-Mills and Maxwell Theory, as well as the 4D N=4 Vector multiplet with N=1 Off-shell, and the 4D N=4 Vector-Tensor multiplet with N=2 Off-shell, are investigated using new computational methods. The structure of the SUSY Algebra, L and R matrices, and adinkra are found. Permutation elements are found for the theories with square L matrices.

[1]University of Maryland
[2]Pepperdine University
[3]Brown University
[4]William and Mary
[5]University of California, Los Angeles
[6]University of Connecticut