

1106-15-2393 **Dean J Katsaros*** (dj`katsaros`@email.wm.edu). *Decomposition of Quantum Gates.*

Unitary gate (matrix) decomposition is a fundamental research area in Quantum Information Science, being concerned with lowering the metaphoric “cost” of computation while still allowing execution of any and all operations. In particular, in the 2 qubit, or 4 by 4 unitary matrix case, we studied ways of identifying the minimum number of control gates necessary for decomposition. Furthermore, we focused on the efficiency of implementing these minimum gates, and ease of identification of decomposition method needed. Comparisons of our results with other published schemes were made and analyzed with these criteria in mind. (Received September 16, 2014)