The Utility of Class II Mesoionic Xanthines as Ten-Qubit Quantum Computing Substrate Registers

SALVATORE GIANDINOTO[#] & RICHARD L. AMOROSO[*]

Noetic Advanced Studies Institute
Los Angeles, CA 90025 USA
[#]salgino20@yahoo.com
[*]amoroso@noeticadvancedstudies.us

Abstract. Class II mesoionic xanthines such as anhydro-(8-hydroxyalkyl-5-hydroxy-7-oxothiazolo[3,2-a]pyrimidinium hydroxides) are unique, small atomic weight, stable crystalline organic compounds that can be represented as a combination of ten different resonance structures for each simple xanthine molecule. Each resonance structure contributes a certain percentage to the total resonance of the molecule. This unique resonance represents ten different quantum states of the entire molecule and can thus be exploited as a potential substrate for a ten-qubit register. The number of possible superposition states for such a register in a single molecule is potentially as high as states or (in this case where n = 10) 1,024 complex numbers. In solution the least-unit of this mesoionic crystalline structure is scalable suggesting putative utility for bulk NMR quantum computing. It will be shown that these ten-qubit registers are amenable to standard Deutsch-Jozsa, Shor and Grover algorithms. Additionally, we attempt to formalize I/O techniques for our Class II mesoionic xanthines based on a coherent control RF process of cumulative resonant interaction where by utilizing additional degrees of freedom pertinent to a relativistic basis for 12D qbit (r-qbit) new HD commutation rules allow decoherence to be ontologically overcome.