

Review of: "The Standard Model Symmetry and Qubit Entanglement"

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Quantum mechanics is based on complex numbers. Here the author illustrates the Hopf fibration in 4d space for a single qubit state. One may ask what happens if we replace the complex numbers by quaternions and octonions respectively. The answer may well be that we get Hopf fibrations in 8d and 16d spaces respectively. But then it seems the author confuses quantum mechanics terminology with these kind of generalization as he uses words like two entangled qubits and three entangled qubits and so forth. What the author imagines with two entangled qubits is a new kind of quantum mechanics based on quaternions rather than on complex numbers. And then the generalization to octonions would imply a generalization further to octonionic quantum mechanics. In standard quantum mechanics, the two-qubit state will be a Hopf fibration from seven-sphere down to the 2d complex projective space. This is not what the author has in mind. So therefore I do not think this paper can be published. In order to make any sense of what is written in this paper, the author would first need to develop a quaternion quantum mechanics and move on from there. Of course in addition to that mistake, there is really nothing new in this paper, other than another misconception regarding four-qubit state, where the author speculates about two octonionic Hopf fibrations. That may be so, but then the author would need to explain how the reduction from 31d sphere is happening in precise detail. Some sort of disentanglement maybe? In any case, this speculation is hardly enough to justify publishing this paper. In conclusion, nothing that is written here is new, and whatever is new is either wrong or way too speculative.