1163-08-273 **Jasmine Elder*** (westljasmine@gmail.com). *Post Quantum Cryptography on Reed-Muller code based McEliece Encryption Scheme Variant.*

Cryptography is the science of converting a plaintext, or message into a ciphertext, or scrambled message in order to provide secrecy. With the development of quantum computers on the horizon, it poses a threat to the security of the current cryptosystems that are in place. Quantum computers are able to process complex algorithms and perform advance calculations like integer factorization and discrete logarithm problem that are expected to break all the current cryptosystems. It is already well-known that the McEliece Encryption scheme with Reed Muller codes is not considered as a secure system for both classical and quantum computers. We introduce and study the Reed-Muller code-based RLCE scheme. These successful attacks on the Reed Muller code based McEliece encryption scheme, namely, the Minder-Shokrollahi's attack, the Chizhov-Borodin's attack, and the Square Code attack, are proven to be unsuccessful for the proposed Reed Muller code-based RLCE scheme. We determine the optimal method in preventing these known attacks against the new encryption scheme. We suggest parameters needed for the 128, 192, and 256 bits security level. (Received August 31, 2020)