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Chase T Worley* (cworley3@vols.utk.edu), 1403 Circle Dr., Knoxville, TN 37996. *A Finiteness Result for Circulant Core Hadamard Matrices*. Preliminary report.

A complex Hadamard matrix is a matrix which has complex entries of absolute value 1, and mutually orthogonal rows. Complex Hadamard matrices arise in several fields of mathematics and physics, such as cryptography, operator algebras, harmonic analysis, and quantum information theory. While the definition of a complex Hadamard matrix is deceptively simple, it is rather difficult to provide examples, and there is no general classification. By restricting ourselves to size and type, we can prove partial classification results and finiteness results. Our main result looks at circulant core Hadamard matrices. We will show that there are only finitely many such matrices of size $p+1$ with p a prime number. This is joint work with Remus Nicoara. (Received September 19, 2016)