1135-42-113   **Lily Wittle*** (`lily.wittle@gmail.com`) and **Theresa A Thimons** (`theresa.thimons@gmail.com`). *Investigating the Gerchberg-Saxton Phase Retrieval Algorithm.* Preliminary report.

This presentation discusses the investigation of Gerchberg and Saxton's phase retrieval algorithm. We observed the algorithm's performance by experimentation using a numerical implementation of the algorithm that we wrote in MATLAB. We found that functions of the form $f \times g$, where g is a Gaussian function, have better success than those of the corresponding f. We also found that using a constant initial phase estimate produces more consistent and efficient results for non-centrosymmetric input than the random initial phase estimate used in the original algorithm. Our presentation includes a proof of error convergence and a description of the implementation of our modifications. (Received July 28, 2017)

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