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AN ANALYSIS OF ALGORITHMS FOR SOLVING PHASE RETRIEVAL PROBLEMS

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Abstract of Talk: A number of iterative methods, as shown in JR Fienup's paper Phase Retrieval Algorithms: A Comparison, exist for solving the phase retrieval problem of recovering the Fourier phase angle given only a measurement of the modulus of the Fourier Transform and an estimate of the function. Most of these methods do not have a solid mathematical framework and questions of stability and convergence are still unknown. The methods also can run into problems such as converging to local instead of global minimums leading to uniqueness problems. I will discuss these methods as well as give insights into possible mathematical foundations for them.