1094-42-407 **Yang Wang*** (ywang@math.msu.edu), 5228 MADISON AVE, APT A5, Okemos, MI 48864. *The Phase Retrieval Problem.*

The classic phase retrieval problem refers to the reconstruction of a function from the magnitude of its Fourier transform. It amounts to reconstructing the phase information of the Fourier transform from magnitude only, and hence the term "phase retrieval". A more general version of the phase retrieval problem is to whether an element in a Hilbert space is determined the magnitudes of certain inner products. Phase retrieval has seen growing applications in signal processing and particularly in many imaging problems. Today phase retrieval problem has been extended to the more general problem of reconstructing a function (an image or a signal) from the magnitude of some transform of it.

Substantial progress on phase retrieval has been made in recent years both in theory and applications. Nevertheless there remains numerous open problems, many appears to be extremely challenging. In this talk, I'll give an overview of the phase retrieval problem and present some of the latest advances as well as open problems in the area. (Received August 28, 2013)