

1125-41-893

**Yang Wang\*** (yangwang@ust.hk), Department of Math, Hong Kong Univ. of Science and Technology, Clear Water Bay, Kowloon, Hong Kong. *On Generalized Phase Retrieval.*

In many applications such as X-ray Crystallography, imaging, communication and others one must construct a function/signal from only the magnitude of the measurements. These measurements can be, for example, the Fourier transform of the density function. While it is well known that we can recover a function from its Fourier transform, the classical phase retrieval problem asks whether we can recover a function from only the magnitude of its Fourier transform. The phase retrieval problem has since been extended to a much broader class of settings, referring to the reconstruction of a signal from only the magnitude of its linear measurements or more generally, from quadratic measurements. In this talk we consider the problem in the more general setting, asking whether a signal can be reconstructed from its quadratic measurements. The problem turns out to be quite challenging. Many fundamental theoretical problems remain unresolved. Equally interesting is the connections to some classical problems on the embedding of projective spaces into Euclidean spaces and nonsingular bilinear forms. In this talk I'll give a brief overview and discuss some of the recent progresses. (Received September 13, 2016)