1164-65-107 **Junshan Lin*** (jzl0097@auburn.edu), Department of Mathematics and Statistics, Auburn University, Auburn, AL 36849. *A Super-resolution Imaging Approach by Using Subwavelength Hole Resonances.*

Based on our recent studies on subwavelength hole resonances, we present a new imaging modality with illumination patterns generated from a collection of coupled resonant holes. When the incident frequencies are close to the resonant frequencies, the corresponding patterned illuminations encompass both low frequency and highly oscillatory waves, which allow for probing both the low and high spatial frequencies components of the imaging sample to achieve super-resolution. Under the weak scattering scenario, the linear imaging problem essentially boils down to a deconvolution problem that can be solved efficiently. The imaging setup, the underlying mathematical framework and the computational results will be exemplified in two dimensions. (Received January 10, 2021)