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**Junshan Lin\*** (jz10097@auburn.edu), Department of Mathematics and Statistics, Auburn University, Auburn, AL 36830. *Scattering Resonances Through Small Holes: Perfect Conductors and Plasmonic Metals.*

The so-called extraordinary optical transmission (EOT) through metallic nanoholes has triggered extensive research in modern plasmonics. The mechanisms contributing to the EOT phenomenon can be complicated due to the multiscale nature of the underlying structure. In this talk, I will focus on one mechanism induced by resonances. Rigorous mathematical analysis and numerical approaches will be presented to study the scattering resonances for two-dimensional structures. Both the perfect electric conductors and plasmonic metals will be discussed. (Received August 20, 2018)