1125-60-2351 **Jiarui Chu*** (jichu@davidson.edu) and **Laurie Heyer**. *Random Unit Bar and Unit Square Visibility.* Preliminary report.

In visibility problems, two unit bars are visible to each other if an unobstructed vertical line of sight can be drawn between them. Similarly, two unit squares in a two-dimensional space are mutually visible if there is an unobstructed vertical or horizontal sightline between them. The study of visibility problems and visibility graphs are motivated by Very-Large-Scale-Integration (VLSI) layout design problems, and have applications in robot navigation, hidden-surface removal, and computer-aided software-engineering (CASE) tools. Although there is a rich body of research on visibility, no result has been published on the probabilistic aspects of visibility problems. We assume the locations of the bars and squares to be uniformly distributed, and study three problems. We derive the probability density function and expected value for the number of bars required to cover the top bar. Then we generalize the result to random squares in a two-dimensional space. Finally, we consider unit bar visibility as a model for random graphs by studying the probabilities that a random unit bar visibility graph has certain properties, such as being cyclic or connected. (Received September 20, 2016)