1074-05-227 **Andrew Beveridge*** (abeverid@macalester.edu), Department of Mathematics, Macalester College, 1600 Grand Avenue, Saint Paul, MN 55105, and **Andrzej Dudek**, **Alan Frieze** and **Tobias Mueller**. *Cops and Robbers on Geometric Graphs.*

In the game of cops and robbers, one robber is pursued by a set of cops on a graph G. In each round, these agents move between vertices along the edges of the graph. The cop number $c(G)$ denotes the minimum number of cops required to catch the robber in finite time. We study the cop number of geometric graphs. For points $x_1, \ldots, x_n \in R^2$, and $r \in R^+$, the vertex set of the geometric graph $G(x_1, \ldots, x_n; r)$ is the graph on these n points, with x_i, x_j adjacent when $\|x_i - x_j\| \leq r$. We prove that $c(G) \leq 9$ for any connected geometric graph G in R^2. We improve on this bound for random geometric graphs that are sufficiently dense. Let $G(n, r)$ denote the probability space of geometric graphs with n vertices chosen uniformly and independently from $[0, 1]^2$. For $G \in G(n, r)$, we show that with high probability (whp), if $nr^4 \gg \log n$, then $c(G) \leq 2$, and if $nr^5 \gg \log n$, then $c(G) = 1$ Finally, we provide a lower bound near the connectivity regime of $G(n, r)$: if $nr^2 \ll \log^2 n$ then $c(G) > 1$ whp. (Received August 22, 2011)