1067-49-1323 **Tao Wang*** (wang_t@math.psu.edu), 402 McAllister BLDG, Department of Mathematics, university park, PA 16802, and **Alberto Bressan**. *The Minimum Speed for a Blocking Problem on the Half Plane.*

We consider a blocking problem: fire propagates on a half plane with unit speed in all directions. To block it, a barrier can be constructed in real time, at speed σ. We prove that the fire can be entirely blocked by the wall, in finite time, if and only if $\sigma > 1$.

The proof relies on a geometric lemma of independent interest. Namely, let $K \subset R^2$ be a compact, simply connected set with smooth boundary. We define $d_K(x, y)$ as the minimum length among all paths connecting x with y and remaining inside K. Then d_K attains its maximum at a pair of points $(\bar{x}, \bar{y})$ both on the boundary of K. (Received September 22, 2010)