## The 2-surviving rate of C7-free planar graphs

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Let *G* be a connected graph with  $n \ge 2$  vertices. Let  $k \ge 1$  be an integer. Suppose that a fire breaks out at a vertex *v* of *G*. A firefighter starts to protect vertices. At each step, the firefighter protects *k*-vertices that are not yet on fire. At the end of each step, the fire spreads to all unprotected vertices that have a neighbour on fire. Let  $sn_k(v)$  denote the maximum number of vertices of *G* that the firefighter can save when a fire breaks out at *v*. The average *k*-surviving rate  $\rho_k(G) = \sum_{v \in V(G)} sn_k(v)/n^2$ . We shall discuss  $\rho_2(G)$  in this talk where *G* is a *C*<sub>7</sub>-free planar graph.

Key word: planar graph, cycle free, fire control