Bridge Burning Cops and Robbers

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Cops and robbers is a widely studied game that models the search for information throughout a graph or network. The cop team usually consists of $k \geq 1$ cops and the robber team usually consists of a single robber. Play begins with the initial placement of each player (starting with the cop team and ending with the robber) onto a vertex of the graph. The two teams then take turns moving from vertex to vertex by traversing the edges of the graph. The cop number is the minimum number of cops that are required to guarantee capture of the robber on the given graph. A recent variant of this game, introduced by Kinnersley and Peterson, mandates that each edge of the graph is deleted upon traversal by the robber. This gives rise to the bridge burning cop number which is interestingly incomparable to the standard cop number. This talk will present some nuances of the bridge burning cop number and introduce a new generalization that grants each edge multiple traversals by the robber before being deleted.

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