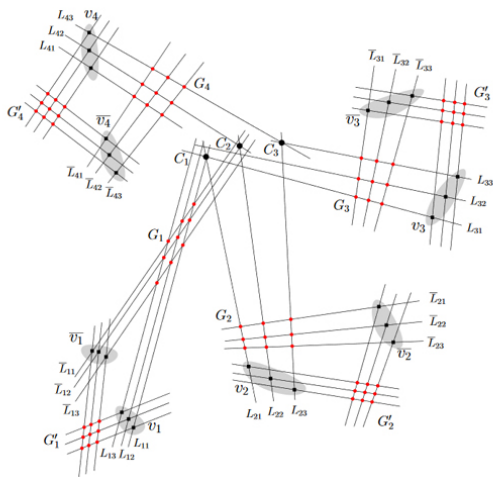


Continuous surveillance of points by rotating floodlights

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Let P and F be sets of n \mathbb{R}^2 and m \mathbb{R}^2 points in a plane, respectively. We study the problem of finding the minimum angle $\alpha \in [2\pi/m, 2\pi]$ such that one can install at each point of F a stationary rotating floodlight with illumination angle α , initially oriented in a suitable direction, in such a way that, at all times, every target point of P is illuminated by at least one floodlight. All floodlights rotate clockwise at unit speed. We provide bounds for the case in which the elements of P are on a given line, and present exact results for the case in the plane in which we have two

floodlights and many target points. We further consider the non-rotating version of the problem and look for the minimum angle α such that one can install a non-rotating floodlight with illumination angle α at each point of F , in such a way that every target point of P is illuminated by at least one floodlight. We show that this problem is NP-hard and hard to approximate.