

A Hybrid Communication Network consists of an ad hoc network and a cellular infrastructure. The cellular infrastructure enables to obtain information about the underlying unknown ad hoc network. Considering the ad hoc network as a WiFi-connected set of smartphones, the information we are interested in would be the location and shape of radio holes. Jung et al. introduced in their work [1] a distributed algorithm to calculate information about radio holes in $O(\log^2 n)$ and short paths between two ad hoc network participants. Therefore, they considered convex hulls as radio hole abstractions and proved that the number of cellular infrastructure convex hull nodes is $O(L)$, where L is the number of hole nodes.

To reduce the number of cellular infrastructure nodes (1), on the one hand, and to still obtain information about the ad hoc network in $O(\log^2 n)$ communication rounds or even less (2) the research question arises: Which are suitable hole abstractions that fulfill the properties (1) and (2)?

In this talk, we present the state of art of our two new approaches for routing in hybrid communication networks.

[1] Competitive Routing in Hybrid Communication Networks, D. Jung, C. Kolb, C. Scheideler,

J. Sundermeier, Algosensors 2018