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Younjin Kim, Mohit Kumbhat* (mohitkumbhat@gmail.com), **Zoltan Lorant Nagy, Balazs Patkos, Alexey Pokrovskiy** and **Mate Vizer**. *Searching with balls in graphs*. Preliminary report.

Given a graph G , a positive integer R and an unknown vertex $v \in V(G)$, we discuss the following combinatorial search theoretic problem: What is the minimum number of queries of the form “Does v belong to the ball of radius r with center u (where $u \in V(G)$ and $r \leq R$) ?” to identify v . We consider both the adaptive case when a query might depend on the answers to the previous queries and the non-adaptive case when all queries must be made at once. In this talk we discuss the bounds on the minimum number of queries for hypercubes, the Erdos-Renyi random graphs and graphs of bounded maximum degree. (Received July 29, 2014)