

**EXISTENCE OF A PERSISTENT HUB IN THE CONVEX PREFERENTIAL
ATTACHMENT MODEL**

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Abstract: A vertex of a randomly growing graph is called a *persistent hub* if at all but finitely many moments of time it has the maximal degree in the graph. We establish the existence of a persistent hub in the Barabási–Albert random graph model with probability one. We also extend this result to the class of convex preferential attachment graphs, where a vertex of degree k gets a new edge with probability proportional to some convex function of k .

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