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Karen Gunderson* (karen.gunderson@umanitoba.ca), Department of Mathematics, Winnipeg, MB R3T 2N2, Canada. *Longest cycles in a preferential attachment random graph model*. Preliminary report.

In preferential attachment graph models, a graph is built vertex by vertex and when each new vertex arrives, it sends m new edges to older vertices, randomly, with vertices of high degree being more likely to be selected as a neighbour. One such example is the Buckley–Osthus random graph model which is a generalisation of the Barabási–Albert preferential attachment graph model. I will discuss new bounds on the size of the longest cycles and the largest matchings in the Buckley–Osthus random graphs. These results can be used to answer a question of Frieze, Pérez-Giménez, Prałat, and Reiniger on the Hamiltonicity of the Barabási–Albert preferential attachment graph model with parameter $m = 3$. Based on joint work with Michał Przykucki. (Received August 27, 2020)