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Lingjuan Shi*, Xi'an Shanxi, xi'an, 710072, Peoples Rep of China, and **Heping Zhang** and **Ruizhi Lin**. *Characterizing the fullerene graphs with the minimum forcing number 3*. Preliminary report.

The minimum forcing number of a graph G is the smallest number of edges simultaneously contained in a unique perfect matching of G . Zhang, Ye and Shiu (Forcing matching numbers of fullerene graphs, Discrete Appl. Math., 2012) showed that the minimum forcing number of any fullerene graph was bounded below by 3. However, we find that there exists exactly one excepted fullerene F_{24} with the minimum forcing number 2. In this paper, we characterize all fullerenes with the minimum forcing number 3 by a construction approach. This also solves an open problem proposed by Zhang et al. We also find that except for F_{24} , all fullerenes with anti-forcing number 4 have the minimum forcing number 3. In particular, the nanotube fullerenes of type $(4, 2)$ are such fullerenes. (Received December 21, 2020)