Summary: The matching energy of a graph was introduced by I. Gutman and S. Wagner [ibid. 160, No. 15, 2177–2187 (2012; Zbl 1252.05120)], which is defined as the sum of the absolute values of the roots of the matching polynomial of the graph. For the random graph $G_{n,p}$ of order $n$ with fixed probability $p \in (0, 1)$, Gutman and Wagner [loc. cit.] proposed a conjecture that the expectation of the matching energy of $G_{n,p}$ is asymptotically equal to $\frac{8\sqrt{\pi}}{3n^2}$. In this paper, using analytical tools, we confirm this conjecture by obtaining a stronger result that the matching energy of $G_{n,p}$ is asymptotically almost surely equal to $\frac{8\sqrt{\pi}}{3\sqrt{n}}$.

Keywords: matching energy; matching polynomial; random graph; empirical matching distribution
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