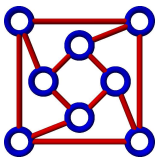

CSGT 2014, June 9–13 2014, Teplice nad Bečvou
49th Czech-Slovak Conference on Graph Theory 2014
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WIENER INDEX OF ITERATED LINE GRAPHS OF TREES

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Let G be a graph. Its Wiener index, $W(G)$, is the sum of all distances in G. Iterated line graph $L^i(G))$ is defined recursively by $L^i(G) = L(L^{i-1}(G))$ for $i \geq 1$, while $L^0(G) = G$. Let T denote a tree. It is known that $W(L(T)) \neq W(T)$ if T is non-trivial, but $W(L^2(T)) = W(T)$ has infinitely many solutions. Dobrynin and Melnikov conjectured that in the class of trees $W(L^i(T)) = W(T)$ has no solution for $i \geq 3$. In a series of papers we disprove this conjecture and we completely characterize all the solutions. We also include some remarks about $W(L^2(T)) = W(T)$.