Maximum angular-metric travelling salesman problem with an even number of vertices

Given an Euclidean Graph $G = (V, E)$, the *maximum angular-metric travelling salesman problem* (*MaxAngleTSP*) asks for the longest *Hamiltonian circuit* with respect to the turning angles α. This is equivalent to minimizing the sum of all inner angles $\widehat{\alpha}$. (For illustration see Figure 1.)

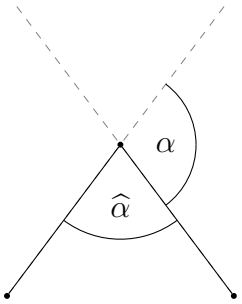

Figure 1: Illustration of the *turning angle* α and of the *inner angle* $\widehat{\alpha}$.

Aichholzer et al [1] have shown that this problem is solvable in polynomial time if the number of vertices n is odd; in this case the objective function value of an optimum solution is always π. Moreover, they proved that the objective function value of an optimum solution lies between 0 and 2π if n is even and that these bound are tight. **Is the MaxAngleTSP solvable in polynomial time if n is even? If this is not the case, which complexity class does this problem belong to?**

References

[1] O. Aichholzer, A. Fischer, F. Fischer, F.J. Meier, U. Pferschy, A. Pilz, and R. Staněk, Minimization and maximization versions of the quadratic travelling salesman problem, *Optimization* **66 (4)**, 521–546, 2017.