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# 基于速度势迭代的面元法预报对转桨性能

# Surface panel method based on potential iteration to predict the performance of contra-rotating propeller

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**中文关键词:** 诱导速度势 面元法 对转桨 定常水动力性能 影响系数 诱导速度

**英文关键词:**induced potential surface panel method contra-rotating propeller steady hydrodynamic performance influence coefficient induced velocity

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**中文摘要:**

本文采用基于诱导速度势迭代的面元法预报对转桨的定常水动力性能,在计算中,前桨和后桨的相互干扰通过平均影响系数实现；对于前桨尾涡面距后桨表面太近时的异变影响系数通过Lagrange插值求出。同时采用基于诱导速度迭代的面元法预报对转桨水动力性能,并与基于诱导速度势法进行对比,计算结果表明,采用诱导速度势迭代的方法计算的结果与试验值吻合良好；与基于诱导速度迭代的方法相比,计算结果较为精确,且可以节省大量计算时间。

**英文摘要:**

The induced potential iteration based on surface panel method is used to predict the steady performance of contra-rotating propeller. During calculation, the interaction between front propeller and after propeller is taken into account by average influence coefficient. In the influence coefficient computation, the singular values are interpolated by Lagrange method when the distance between wake surface of front propeller and after propeller surface is too smaller. Numerical results showed that the calculation values solved by the method presented are agreed with the experimental data well. Compared with the induced velocity iterative method, the method presented can not only get better numerical results, but also save programming and calculation time.





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