수치해법을 이용한 풍력 및 조류발전용 수평축 터빈의 성능해석

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Numerical analysis for horizontal axis wind and tidal stream energy conversion turbine

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In the present study, two numerical methods were developed and compared for the performance prediction of the horizontal axis energy conversion turbine. The Blade Element Momentum Theory was adopted, and the rotating reference frame method for Computational Fluid Dynamics solver was also used. Hybrid meshing was used for the complex geometry of turbines. The analysis results using each method were compared to figure out a better method for the performance prediction.

Key words : Tidal stream energy conversion turbine(조류발전터빈), Horizontal axis turbine(수평축터빈), Blade Element Momentum Theory(날개요소운동량이론), CFD(전산유체역학)

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파랑을 이용한 부유식 직접 구동 터빈의 설계

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Design of Floating Type Wave Energy Convertor with Direct Drive Turbine.

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Dye to recent development such as increasing price of fossil fuels and energy offers such a solution. Wave energy supplies. Weve energy offers such a solution. Wave energy is the most consistent of all the intermittent renewable energy sources. In addition to this, very large energy fluxes occur in the ocean waves and by using appropriate wave energy converters the energy can be harnessed. The present study looks at utilizing a direct drive turbine of cross flow type to extract energy from ocean waves indirectly. This novel design incorporates a turbine in an enclosed in a closed tank. utilizing the energy generated from sloshing.

Key words : Wave energy(파력에너지), Performance(성능), Direct Drive Turbine(직접구동터빈), Internal flow(내부유동), Computational Fluid Dynamics(전산유체해석)

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