

하나로 냉각팬의 회전 블레이드 동역학 해석

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Dynamic Analysis of a Rotating Blade for the HANARO Cooling Fan

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Key Words: HANARO(하나로), Cooling Tower(냉각탑), Flexible multi-body (유연 다물체),
Velocity Transformation matrix(속도변환행렬), Natural Frequency(고유진동수)

Abstract : The HANARO, a multi-purpose research reactor of a 30 MWth, open-tank-in pool type, has been under normal operation in the KAERI(Korea Atomic Energy Research Institute). The heat which is generated by the nuclear fission in the HANARO is cooled through the 1st and the 2nd cooling system. The cooling tower enables it to operate normally as a consequence of the heat removal in the HANARO. The cooling tower is equipped with the cooling fan in order to move the air which absorbed in heat through the 2nd coolant. Therefore, fan performance is very significant to operate the HANARO. In this paper, dynamic analysis of a rotating blade for the HANARO is simulated by using the numerical integration time by the dynamic analysis of the rotating blade. Also, variable natural frequencies of the blade associated with the angular speed of the hub are simulated in order to operate the HANARO safely.

가상 주행 실험을 이용한 운전자 특성 분석

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Analysis of Human Driver Characteristics on a Virtual Test Track

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Key Words: ACC(적응형 순항제어), Simulator(시뮬레이터), TimeGap(타임갭), Driver Assistance System(운전자 보조장치), CAN communication(캔통신)

Abstract : The vehicle simulator is a virtual reality device which designed to test or evaluate vehicle control algorithm. It is designed and built based on the rapid control prototyping(RCP) concept. Therefore this simulator adopt RCP tools to solve the equation of a vehicle dynamics model and control algorithm in real time, rendering engine to provide real-time visual representation of vehicle behavior using CAN communication to reduce networking load. It can be compared with human driving for the validation of itself and applied to analysis of human driver characteristics