

A Study on Radial Buckling Correction for Improved ECP Estimation Using APOLLO

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Abstract

The accurate Estimation of Critical Position (ECP) is required to reduce radio waste and plant outage time in nuclear plant. The key factor for the calculation of ECP is the best prediction of xenon worth at the time of startup. Also the control rod worth should be considered since control rods are usually inserted into the core in order to achieve the criticality of nuclear reactor. Current methodology for the calculation of ECP is based on the results from 3D diffusion codes for the reference core status, like HFP ARO equilibrium xenon condition. However due to the lack of information about the operational history, it is very difficult to predict the ECP correctly in the presence of xenon. Thus, in this study the methodology to predict the ECP using the one-dimensional diffusion code considering the operational history is presented and also correction factors are introduced to match with the result of 3D code.

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액체금속로 과도안전해석 SSC-K 해석결과 가시화 개발

Development on Visualizing the Analysis Results of SSC-K for KALIMER Transient Safety Analyses

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요 약

이 논문은 한국원자력연구소에서 개발한 액체금속로(칼리머) 안전해석용 계통분석 전산코드인 SSC-K의 해석결과에 대한 가시화 개발에 관한 것이다. SSC-K를 이용한 실시간 과도모의 상태파악, 주요 변수의 변화를 그래프 등으로 연계하여 액체금속로 안전해석 분석 자료를 가시화하여, 궁극적으로 액체금속로 안전해석의 복잡하고 다양한 계산결과 분석의 효율성 및 용이성을 극대화 시켜 액체금속로 안전해석 전산체제개발에 기여할 것으로 본다