노외중성자속감시계통 개선
Ex-core Neutron Flux Monitoring System Improvement

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요 약

노외중성자속감시계통은 원자로 보호, 제어 및 정보 지시를 위하여 원자로용기에서 유출된 중성자속을 감시함으로써 원자로출력을 측정하는 계통이다. 개선된 노외중성자속감시계통은 광대역측정용 핵분열함만을 사용하며, 관련기기인 전치증폭기 및 고전압전원 등도 한 종류만을 사용하여 기기의 종류를 표준화하고, 비용절감 및 작업자들의 피폭량을 저감하고자 하였다. 또한 신호대 잡음비를 개선하고 기기 배치등을 새로 구성하여 시운전 등의 운전성 및 가용성을 향상하고자 하였다. 본 논문은 노외중성자속감시계통의 설계개선내용을 설명하고, 이에 따른 설계개선효과를 기술한다.

A Study on HCI Design Strategy using Emergent Features and Response Time

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ABSTRACT

Existing design process of user interface has some weak point that there is no feedback information and no quantitative information between each sub process. If they're such information in design process, the design time cycle will be decreased and the contentment of HCI in the aspect of user will be more easily archived.

In this study, new design process with feedback information and quantitative information was proposed using emergent features and user response time. The proposed methodology was put together with three main parts. First part is to calculate distinctiveness of a user interface or expanded user interface with consideration of emergent features. Second part is to expand a prototype user interface with design option for purpose of design requirement using directed structure graph (or nodal graph) theory. Last part is to convert non-realized value, distinctiveness, into realized value, response time, by response time database or response time correlation in the form of Hick-Hyman law equation.

From the present validations, the usefulness of the proposed methodology was obtained by simple validation testing. It was found that emergent features should be improved for high reflection of real user interface. For the reliability of response time database, lots of end-user experiment is necessary. Expansion algorithm and representation technique of qualitative information should be somewhat improved for more efficient design process.