

# HUMAN FACTORS EVALUATION IN OPERATORS WITH ATTENTION TO INSIDER THREAT DETECTION



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## **SYNOPSIS:**

This interdisciplinary research brings together experts in human science and researchers from Research Reactor Center-CRPq, based on a PhD thesis ongoing aims to include human factors of psychological, physiological and behavioral causes in the 'reactor trip'. The reactor trip (also known as scram) usually is applied to technical factors to prevent high consequence events. Technologies associated with neuroscience and psychological assessments, such as: facial expression recognition, heart rate, stress performance, mood, depression, anxiety, sleepiness, drug and alcohol detections; could allow the operator assessment in the control room. Thus reinforcing the defense in depth (DiD) philosophy application.

## **METHODS:**

Considering the same approach of human factor related in the James Reason and Human Factor Analysis Classification System (HFACS) publications. Measurements obtained through individual assessment of the reactor operators will be analyzed and recorded in databases. Ranges of limits will be determined and correlated statistically with operator assessment results and consequently the risk status of LOW, MEDIUM or HIGH; thus it could prevent human error.

## **DISCUSSION:**

With the application of human factors in the reactor trip, enhanced safety and security during reactor operation is expected since measures from psychological, physiological and behavioral causes would predict the diagnosis of operators health problems and/or sabotage threats at the facility. Results of this study may also be applied to the selection and training of new operators. Nuclear reactor operation is considered high-risk activities as well as other activities related to medicine, transport and petrochemical industries. Always in mind that human error is a symptom of a system that needs to be redesigned and blame is safety enemy.

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