



Contribution ID: 144

Type: **Oral presentation**

#05-144 Novel Model-Based approach for instrumentation and control of nuclear reactors

Wednesday, June 23, 2021 12:20 PM (20 minutes)

Technological platforms dedicated for digital instrumentation and control of nuclear reactors are quite complex in terms of functionalities and devices. Hence, the design of these platforms requires high-level abstraction layers able to reduce the complexity, to rise the automation and to check the consistency between different development stages. The development of such systems is a challenging task that requires modeling of various components at different levels of abstraction and viewpoints, notably functional, hardware and software levels. In this paper, a new system engineering methodology is proposed to provide high-level models of different components and inter/intra- communication between them. These models are used for system specification, architecture design, performance evaluation or verification and validation. This approach focuses on the internal behavior of different components at different levels of abstraction in order to enable the interoperability of these components and to enhance cooperation between different stakeholders of the development process. An experimental setup has been carried out to validate this approach by customizing an open source model based engineering tool, Eclipse Papyrus, towards a significant reduction of system development cost in terms of engineering resources and equipment devices.

Primary author: OUNI, Bassem (Université Paris-Saclay, CEA, List, F-91120 Palaiseau, France)

Presenter: OUNI, Bassem (Université Paris-Saclay, CEA, List, F-91120 Palaiseau, France)

Session Classification: 05 Nuclear Power Reactors Monitoring and Control

Track Classification: 05 Nuclear Power Reactors Monitoring and Control