Contribution ID: **600** Type: **Poster**

Performance of 14-MeV Neutron Generator at IPR

Wednesday, October 24, 2018 8:30 AM (4 hours)

The Fusion Neutronics laboratory at Institute for Plasma Research (IPR), Gandhinagar, India has indigenously developed an accelerator based 14-MeV neutron generator for fusion neutronics studies for material development under Indian Fusion program. This neutron generator is producing neutron yield of 10^{10} n/s and it will be further upgraded to the 10^{12} n/s. It consists of a 2.45 GHz ECR ion source, 300 kV linear accelerator, beam diagnostic system, TMP based vacuum system, solid tritium target and a control system. Various neutron detection techniques like foil activation, associated alpha particle detector, and He-3 proportional counter have been set up to in the system measure the neutron yield independently and online neutron yield. Results of all independent diagnostic were compared. Monte Carlo technique was used to get reaction rate for foil activation. This paper describes the experimental setup and performance of the 14-MeV neutron generator including its neutron diagnostic to highlights its stability for continuous operation.

Country or International Organization

India

Paper Number

FIP/P3-33

Primary author: Mr VALA, SUDHIRSINH (INSTIUTE FOR PLASMA RESEARCH)

Co-authors: Dr MAINAK BANDYOPADHYAY, MAINAK (ITER-INDIA, INSTITUTE FOR PLASMA RESEARCH); Mr ABHANGI, MITUL (INSTITUTE FOR PLASMA RESEARCH); Mr KUMAR, RATNESH (INSTITUTE FOR PLASMA RESEARCH); Ms TIWARI, Shailja (Institute for Plasma Research)

Presenter: Mr VALA, SUDHIRSINH (INSTIUTE FOR PLASMA RESEARCH)

Session Classification: P3 Posters

Track Classification: FIP - Fusion Engineering, Integration and Power Plant Design