



Contribution ID: 311

Type: **not specified**

Plan and progress of the fusion neutron sources at KAERI for fusion and fission applications

Monday, 17 September 2018 11:00 (2 hours)

According to the National Fusion Energy Program in Korea, Volumetric Fusion Neutron Source (temporarily called, V-FNS) has been planned and Compact Fusion Neutron Source (temporarily called, C-FNS) development was started at KAERI, which can be used in the fusion and also the fission/industrial applications such as radiotracing isotope production, radiography, and so on, in which the various targets were considered in parallel. For developing the C-FNS, plasma generator based on RF ion source including RF driver/generator was developed and target has been designed, fabricated, and tested with the high heat flux test facility (KoHLT-EB) before assembling with the ion beam for investigate its integrity under the heating condition. Test conditions were prepared with the preliminary analysis and compared with the test results. From this result, the design was optimized and optimized target design was proposed. So far, the C-FNS is successfully developed, and the preparation of the on-site C-FNS and further V-FNS design in detail is in progress.

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Session Classification: P1