

## **Initial result of triton burnup measurements by neutron activation system in EAST**

Kai Li <sup>1</sup>, Liqun Hu <sup>1</sup>, Guoqiang Zhong <sup>1</sup>, Yinxian Jie <sup>1</sup>, Ruijie Zhou <sup>1</sup>, Bin Hong <sup>1</sup> and Ruixue Zhang <sup>1,2</sup>

1) *Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, 230031, China*

*E-mail : likai@ipp.ac.cn*

2) *University of Science and Technology of China, Hefei, 230031, China*

A neutron activation system contains two sets of activation terminals was built in Experimental Advanced Superconducting Tokamak (EAST), and it was implemented in the measurements of the time-integrated triton burnup for deuterium plasma experiment in EAST. The neutron activation samples were served as neutron detectors and were activated by neutrons during the plasma discharge. The energy threshold of indium and silicon samples were 0.3 MeV and 4.0 MeV, which can be used to measure the DD and DT neutrons, respectively. The shot averaged triton burnup ratio was obtained by simultaneous detection of the DD and DT neutron yield through the neutron activation measurement of high purity indium and silicon samples. The triton burnup ratio of EAST is found to be  $6.2 \times 10^{-4} \sim 5.0 \times 10^{-3}$  depending on the plasma parameters of the discharge, and the triton burnup ratio increases with the plasma current.