論文 / 著書情報
Article / Book Information

論題(和文)	
Title(English)	Tritium burning in inertial electrostatic confinement fusion facility
著者(和文)	大西 正視, 山本 靖, 大沢 穂高, 増田 開, 堀田 栄喜
Authors(English)	Masami Ohnishi, Yasushi Yamamoto, Hodaka Osawa, Yuji Hatano, Yuji Torikai, Isao Murata, Keita Kamakura, Masaaki Onishi, Keiji Miyamoto, Hiroki Konda, Kai Masuda, Eiki Hotta
出典(和文)	, , ,
Citation(English)	17th US-Japan Workshop on Fusion Neutron Sources for Nuclear Assay and Applications (IEC2015) Book of Abstract, , ,
発行日 / Pub. date	2015, 10

Tritium burning in inertial electrostatic confinement fusion facility[†]

*Masami Ohnishi¹⁾, Yasushi Yamamoto¹⁾, Hodaka Osawa¹⁾,
Yuji Hatano²⁾, Yuji Torikai²⁾, Isao Murata³⁾, Keita Kamakura¹⁾
Masaaki Onishi¹⁾, Keiji Miyamoto¹⁾,
Hiroki Konda¹⁾, Kai Masuda⁴⁾ and Eiki Hotta⁵⁾*

¹⁾*Kansai University, Department of Science and Engineering
23-3 Yamate-cho, Suita, Osaka 564-8680, Japan*

²⁾*University of Toyama, Hydrogen Isotope Science Center
Gofuku, Toyama-shi, Toyama 930-8555, Japan*

³⁾*Osaka University, Faculty of Engineering
Environment and Energy Department 2-1 Yamadaoka, Suita, Osaka 565-0871, Japan*

⁴⁾*Kyoto University, Institute of Advanced Energy
Gokasho, Uji, Kyoto 611-0011, Japan*

⁵⁾*Tokyo Institute of Technology, Interdisciplinary Graduate School of Science and
Engineering 4259 Nagatsuda-cho, Midori-ku, Yokohama 226-8503, Japan*

E-mail: ohnishi@kansai-u.ac.jp, TEL: +81,66368-0797

A tritium burning experiment is conducted in order to investigate the enhancement of the neutron production rate in an inertial electrostatic confinement fusion (IECF) facility. The facility is designed to be shielded from the outside for tritium safety, and a getter pump is used for evacuating the vacuum chamber and feeding the fuel gas. A D-T gas mixture with 93% deuterium and 7% tritium is used, and its neutron production rate is measured to be 5–8 times more than that of pure deuterium gas. Moreover, the results show good agreement with a simplified theoretical estimation of the neutron production rate. After the tritium burning, the exhausted fuel gas undergoes a tritium recovery procedure through a water bubbler device. The amount of gaseous tritium released by the developed IECF facility after the tritium burning is verified to be much less than the threshold set by regulations.

[†] Research supported by the Japan Society for the Promotion of Science (JSPS) Grants-in-Aid for Scientific Research (KAKENHI) Grant Number 25289340.