

[18005]

水素同位体透過低減性セラミックス被覆における照射損傷およびヘリウムの影響
Effects of Irradiation Damage and Helium to Hydrogen Permeation Barrier Ceramics Coating

学術論文 (査読あり)

- [1] Kazuki Nakamura, Hikari Fujita, Jan Engels, Masayuki Tokitani, Yoshimitsu Hishinuma, Kiyohiro Yabuuchi, Sosuke Kondo, Sho Kano, Takayuki Terai, Takumi Chikada, “Iron-ion irradiation effects on microstructure of yttrium oxide coating fabricated by magnetron sputtering,” *Fusion Engineering and Design*, in press (2019). DOI: 10.1016/j.fusengdes.2019.03.093
- [2] Hikari Fujita, Takumi Chikada, Jan Engels, Jumpei Mochizuki, Seira Horikoshi, Moeki Matsunaga, Teruya Tanaka, Takayuki Terai, “The relationship between structural changes of ceramic coatings and γ -ray irradiation effect on deuterium permeation,” *Fusion Engineering and Design*, in press (2019). DOI: 10.1016/j.fusengdes.2019.03.166
- [3] Takumi Chikada, Hikari Fujita, Jan Engels, Anne Houben, Jumpei Mochizuki, Seira Horikoshi, Moeki Matsunaga, Masayuki Tokitani, Yoshimitsu Hishinuma, Sosuke Kondo, Kiyohiro Yabuuchi, Thomas Schwarz-Selinger, Takayuki Terai, Yasuhisa Oya, “Deuterium permeation behavior and its iron-ion irradiation effect in yttrium oxide coating deposited by magnetron sputtering,” *Journal of Nuclear Materials* **511**, pp.560–566 (2019).
- [4] Hikari Fujita, Jumpei Mochizuki, Seira Horikoshi, Moeki Matsunaga, Teruya Tanaka, Takayuki Terai, Yasuhisa Oya, Takumi Chikada, “The effect of γ -ray irradiation on deuterium permeation through reduced activation ferritic steel and erbium oxide coating,” *Nuclear Materials and Energy* **17**, pp.78–82 (2018).
- [5] Takumi Chikada, Hikari Fujita, Masayuki Tokitani, Yoshimitsu Hishinuma, Takayuki Terai, Yasuhisa Oya, “Deuterium permeation through monoclinic erbium oxide coating,” *Fusion Engineering and Design* **133**, pp.121–124 (2018).

学術論文 (査読なし)

博士論文

修士論文

- [1] 藤田光, 「核融合炉材料中の水素同位体透過挙動に対するガンマ線照射効果」, 東京大学大学院工学系研究科, (2019) .

卒業論文

国際会議

- [1] Kazuki Nakamura, Hikari Fujita, Jan Engels, Masayuki Tokitani, Yoshimitsu Hishinuma, Kiyohiro Yabuuchi, Sosuke Kondo, Sho Kano, Takayuki Terai, Wataru Inami, Yoshimasa Kawata, Takumi Chikada, “Heavy ion irradiation effects on yttrium oxide coatings,” 第五回超領域研究推進三部局共催国際シンポジウム, Shizuoka, Japan, poster (2019).
- [2] K. Nakamura, H. Fujita, J. Engels, M. Tokitani, Y. Hishinuma, S. Kano, T. Terai, T. Chikada “Iron-ion irradiation effects on microstructure of yttrium oxide coating,” 5th Inter Academia Asia, Shizuoka, Japan, oral (2018).
- [3] Hikari Fujita, Takumi Chikada, Jan Engels, Jumpei Mochizuki, Seira Horikoshi, Moeki Matsunaga, Teruya Tanaka, Takayuki Terai, “ γ -ray irradiation effect on deuterium permeation through ceramic coatings,” 27th IEA Annex II Workshop on Radiation Effects in Ceramic Insulators, Giardini-Naxos, Italy, oral (2018).
- [4] Kazuki Nakamura, Hikari Fujita, Jan Engels, Masayuki Tokitani, Yoshimitsu Hishinuma, Kiyohiro Yabuuchi, Sosuke Kondo, Sho Kano, Takayuki Terai, Takumi Chikada, “Iron-ion irradiation effects on microstructure and deuterium permeation in yttrium oxide coating fabricated by magnetron sputtering,” 27th IEA Annex II Workshop on Radiation Effects in Ceramic Insulators, Giardini-Naxos, Italy, oral (2018).
- [5] Hikari Fujita, Takumi Chikada, Jan Engels, Jumpei Mochizuki, Seira Horikoshi, Moeki Matsunaga, Teruya Tanaka, Takayuki Terai, “The relationship between microstructure of ceramic coatings and γ -ray irradiation effect on deuterium permeation,” 30th Symposium on Fusion Technology, Giardini-Naxos, Italy, poster (2018).
- [6] Kazuki Nakamura, Hikari Fujita, Jan Engels, Masayuki Tokitani, Yoshimitsu Hishinuma, Kiyohiro Yabuuchi, Sosuke Kondo, Sho Kano, Takayuki Terai, Takumi Chikada, “Iron-ion irradiation effects on microstructure and deuterium permeation in yttrium oxide coating fabricated by magnetron sputtering,” 30th Symposium on Fusion Technology,

[18005]

Giardini-Naxos, Italy, poster (2018).

国内会議

- [1] 近田拓未, 中村和貴, 藤田光, 松永萌暉, 木村圭佑, 藪内聖皓, 菱沼良光, 時谷政行, 「トリチウム透過低減被覆中の重水素透過挙動に対するヘリウム注入の影響」, プラズマ・核融合学会第 35 回年会, 大阪大学吹田キャンパス, 口頭発表 (2018) .
- [2] 藤田光, 近田拓未, 松永萌暉, 木村圭佑, 中村和貴, 田中照也, 寺井隆幸, 「トリチウム透過低減被覆中の水素同位体透過に対するガンマ線照射効果」, プラズマ・核融合学会第 35 回年会, 大阪大学吹田キャンパス, 口頭発表 (2018) .
- [3] 中村和貴, 藤田光, Jan Engels, 藪内聖皓, 近藤創介, 叶野翔, 寺井隆幸, 近田拓未, 「マグネトロンスパッタリング法で作製した酸化イットリウム被覆の微細構造および水素同位体透過挙動に対する重イオン照射効果」, 日本原子力学会 2018 年秋の大会, 岡山大学津島キャンパス, 口頭発表 (2018) .
- [4] 藤田光, 近田拓未, Jan Engels, 松永萌暉, 木村圭佑, 中村和貴, 田中照也, 寺井隆幸, 「トリチウム透過低減被覆中の水素同位体透過に対するガンマ線照射効果」, 第 4 回軽水炉燃料・材料・水化学夏期セミナー, 掛川グランドホテル, ポスター発表 (2018) .
- [5] 藤田光, 近田拓未, Jan Engels, 望月惇平, 堀越清良, 松永萌暉, 田中照也, 寺井隆幸, 「低放射化フェライト鋼およびトリチウム透過低減被覆中の水素同位体透過に対するガンマ線照射効果」, 第 12 回核融合エネルギー連合講演会, ピアザ淡海, ポスター発表 (2018) .
- [6] 近田拓未, 中村和貴, 藤田光, Jan Engels, 時谷政行, 菱沼良光, 叶野翔, 藪内聖皓, 近藤創介, 寺井隆幸, 「トリチウム透過低減被覆の微細構造と重水素透過に対する鉄イオン照射影響」, 第 12 回核融合エネルギー連合講演会, ピアザ淡海, ポスター発表 (2018) .

招待講演等

- [1] Takumi Chikada, “Coating research and development for fusion reactor fuel systems,” International Conference on Processing & Manufacturing of Advanced Materials (THERMEC’2018), Paris, France, (2018).

解説・記事等

- [1] 近田拓未, 「連載講座 核融合トリチウム研究最前線—原型炉実現に向けて— 第 6 回 トリチウム透過研究と透過低減技術開発」, 日本原子力学会誌 ATOMOΣ 60, pp.759–763, (2019) .

新聞発表等

特許等