

Accepted Manuscript

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PII: S0022-3115(17)31294-1

DOI: [10.1016/j.jnucmat.2018.03.039](https://doi.org/10.1016/j.jnucmat.2018.03.039)

Reference: NUMA 50861

To appear in: *Journal of Nuclear Materials*

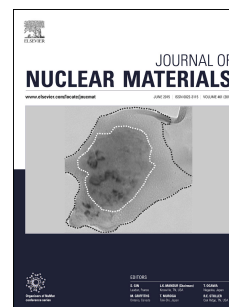
Received Date: 14 September 2017

Revised Date: 15 March 2018

Accepted Date: 22 March 2018

Please cite this article as: A.K. Jiang, Y.W. Zhao, Z. Long, Y. Hu, X.F. Wang, R.L. Yang, H.L. Bao, R.G. Zeng, K.Z. Liu, Determination of interstitial oxygen atom position in $\text{U}_2\text{N}_{3+x}\text{O}_y$ by near edge structure study, *Journal of Nuclear Materials* (2018), doi: 10.1016/j.jnucmat.2018.03.039.

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Determination of Interstitial Oxygen Atom Position in $U_2N_{3+x}O_y$ by Near Edge Structure Study

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Abstract: The determination of interstitial oxygen atom site in $U_2N_{3+x}O_y$ film could facilitate the understanding of the oxidation mechanism of α - U_2N_3 and the effect of $U_2N_{3+x}O_y$ on anti-oxidation. By comparing the similarities and variances between N K edge and O K edge electron energy loss spectra (EELS) for oxidized α - U_2N_3 and UO_2 , the present work looks at the local structure of nitrogen and oxygen atoms in $U_2N_{3+x}O_y$ film, identifying the most possible position of interstitial O atom.

Key words: Uranium oxy-nitride, EXAFS, NEXAFS, ELNES

1. Introduction

Due to its good mechanical performance and corrosion resistance, α - U_2N_3 modified layer has been reported to be a promising anti-oxidation layer for metallic uranium[1-4]. However, Refs

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