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PII: S0969-806X(18)30205-6  
DOI: <https://doi.org/10.1016/j.radphyschem.2018.09.017>  
Reference: RPC8007

To appear in: *Radiation Physics and Chemistry*

Received date: 9 March 2018  
Revised date: 25 July 2018  
Accepted date: 16 September 2018

Cite this article as: Kenta Kakitani, Tetsuya Kimata, Tetsuya Yamaki, Shunya Yamamoto, Daiju Matsumura, Tomitsugu Taguchi and Takayuki Terai, X-ray absorption study of platinum nanoparticles on an ion-irradiated carbon support, *Radiation Physics and Chemistry*, <https://doi.org/10.1016/j.radphyschem.2018.09.017>

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# X-ray absorption study of platinum nanoparticles on an ion-irradiated carbon support

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## Abstract

The chemical state and local structure of 2.6-nm-sized platinum (Pt) nanoparticles on an ion-irradiated glassy carbon (GC) substrate were investigated by X-ray absorption fine structure measurements. The partial oxidation of the Pt nanoparticles was confirmed by the peak intensity in the near-edge region of the absorption spectrum. The analysis of the extended region revealed a higher coordination number and shorter bond length of Pt–Pt compared to those of the Pt nanoparticles on the non-ion-irradiated GC. Thus, Pt nanoparticles on the ion-irradiated GC substrate were found to hold a rigid metallic coordination during the oxidation.

## Keywords

Platinum nanoparticles, Carbon support, Ion-beam irradiation, X-ray absorption fine

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<sup>1</sup> These two authors equally contributed to this study.

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