平成28年度　第4回
分子・物質合成ナノテクプラットフォームセミナー
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台湾の國立中央大學より　***Chung-Jen Tseng***　教授をお迎えして、セミナーを開催いたします。
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講演題目

Production of high performance and improved durability Pt-catalyst/support for proton exchange membrane fuel cells using pulsed laser deposition

概要

Pulsed laser deposition (PLD) in Ar atmosphere is used to deposit Pt nanoparticle onto gas diffusion layer (GDL), and its application in PEM fuel cell is optimized and characterized. When used at anode side, with a Pt loading of 17 μg/cm^2, the current density at 0.6 V in fuel cell test reaches 1100 mA/cm^2, and the performance is almost the same as the commercial E-TEK Pt/C catalyst with 200 μg /cm^2 Pt loading.

Using accelerated degradation test, it is found that the PLD sample retains 60 % of its initial ECSA after 5000 potential cycles, much higher than that with E-TEK Pt/C, which retains only 7 % of its initial ECSA. The higher electrochemical durability can be attributed to the higher degree of graphitization in the GDL, which leads to a stronger binding of the Pt nanoparticles onto the carbon support.

When applying this technique to the cathode side, the current density at 0.6 V in fuel cell test reaches 1200 mA/cm^2 with only 100 μg/cm^2 Pt loading. The performance is close to the commercial E-TEK Pt/C, but the amount of Pt was reduced by 75 % as compared with E-TEK Pt/C.

講演者

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Professor　*Chung-Jen Tseng*

【日　時】　8月 4日（木）16：00～17：00

【場　所】　九州大学伊都キャンパス
ウエスト4号館 物質系4番講義室（W4-314）

【主　催】　・九州大学　分子・物質合成プラットフォーム
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【参加費】　無料

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