

炭素繊維表面へのパラジウム錯体および熱応答性高分子の固定化

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Modification of carbon fiber surface with palladium-complexes and thermoresponsive polymer chains (*Graduate school of Science and Engineering, Kindai University*) ○Shunya Yoshida, Manabu Ishifune

The activated carbon fiber surface was anodically oxidized, and by using the resulting oxidized functionalities the phosphine ligands were fixed on the activated carbon fiber surface. From the resulting **ACF 1** were grafted thermoresponsive poly(*N*-isopropylacrylamide) chains under RAFT polymerization conditions to give **ACF 2**. Palladium ions were then complexed with the phosphine ligand on **ACF 2** to form the carbon fiber containing the palladium complexes surrounded by the thermoresponsive polymers (**ACF 3**). The results of Electron spectroscopy for Chemical Analysis (ESCA) of **ACF 3** clearly showed immobilization of each of the phosphine ligands and the thermoresponsive polymer chains. We have also prepared the modified ACF by changing the functionalization and graft-polymerization order and procedure, and confirmed the immobilization of each components on ACF.

Keywords : *Palladium catalyst, Phosphine ligand, Modified carbon fiber, Thermoresponsive polymer, Hydrophobic polymer field*

活性炭素繊維(ACF)表面を電解酸化し、得られた酸化性官能基を手がかりに、ホスフィン配位子を固定化させることで **ACF 1** を得た。次に RAFT 剤として 2-(Dodecylthiocarbonothioylthio)-2-methylpropionic acid を用いた RAFT 法により熱応答性ポリ(*N*-イソプロピルアクリルアミド)鎖を **ACF 1** 上に固定化することで **ACF 2** が得られ、最後にパラジウムイオンを配位子上に錯化させることで **ACF 3** を得た。X 線光電分光法(ESCA)による測定結果からホスフィン配位子、熱応答性部位それぞれの固定化が確認された。また、ホスフィン配位子と熱応答性部位を固定させる順番を変えた修飾 ACF を調製し測定を行ったところ、同様に固定化が確認された。

