

第2回 VBL セミナー (2019年) 2nd VBL Seminar, 2019

日時：2019年6月4日(火) 10時30分～12時00分

場所：ベンチャー・ビジネス・ラボラトリー 3階ミーティングルーム

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**題目: SURFACE MODIFIED HAFNIUM OXIDE NANOPARTICLES
WITH ORGANIC ACIDS SYNTHESIZED IN SUPERCRITICAL WATER**

Abstract :

Hafnium oxide nanoparticles were synthesized under supercritical water with and without organic acid surface modifiers to produce grafted nanocrystals. The materials synthesized displayed unique controlled-shaped morphologies by using either propionic acid, citric acid, 3,4-dihydroxybenzoic acid or gallic acid as demonstrated by transmission electron microscopy. X-Ray diffraction analysis showed that monoclinic Hafnium oxide nanocrystals were synthesized in this manner. In such syntheses, organic acid molecules directly interact with the nanocrystal surface through carboxylate bondings. Chemical bonding of organic acids grafting the surface of the nanoparticles was evaluated by Fourier transform infrared spectroscopy. The grafting density was quantified from the weight loss measured using thermogravimetric analysis. Nanospheres and nanorods were obtained by tuning the surface modifiers and the supercritical conditions of the synthesis.

Keywords: Hafnium oxide, supercritical water, Organic acid grafting

問い合わせ先 :

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