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## Powder cellulose nanocrystal (nanowhisker) prepared for functional filler of polymers

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Preparation of cellulose/chitin nanocrystals (nanowhiskers), which have been gaining much more attention as reinforcing fillers because of its large resource, superior physical properties with light density, large aspect ratio rarely found in mineral substances and so on, essentially depends on aqueous conditions including acid hydrolysis and subsequent homogenization in water. The obtained nanocrystals indicate strong aggregation on drying to form an irreversibly aggregated solid film. In contrast to the conventional aqueous preparation scheme, the authors have developed a non-aqueous route to disaggregated fine powders of nanocrystals. The sample could be obtained via a homogenization of cellulose hydrolysate in toluene to give a slurry-like suspension, which remained a fine powder containing nanocrystals after a simple air-drying. The suspension is also useful for further surface modification of nanocrystals such as controlled radical polymerizations with particles (CRPwP). This newly developed Nano-cellulose can be promising fillers for polymers.

### Biography

Arita completed his doctorate in physical chemistry at Kyoto University in 2003. After his graduation of Kyoto University, he started physical chemistry of polymer materials in Goettingen University as a post doctorate fellow. He also spent his days in Institute for Chemical Research of Kyoto University as a post-doctoral fellow. Dr. Arita currently belongs to Institute of Multidisciplinary Research for Advanced materials of Tohoku University as an Assistant Professor from 2007. He has been studying polymer-surface-functionalized fillers produced by Polymerization with Particles (PwP) technique invented by him.

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