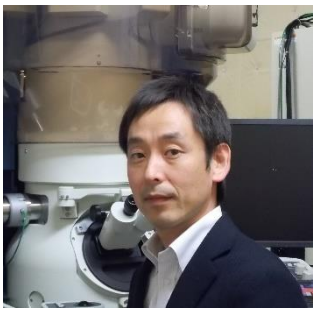


Norihito Hiyoshi

Senior Researcher, Research Institute for Chemical Process Technology, National Institute of Advanced Industrial Science and Technology (AIST)

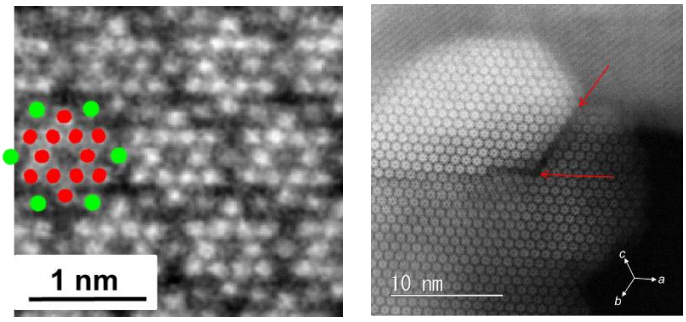
n-hiyoshi@aist.go.jp

Research keywords: Scanning transmission electron microscopy, Catalyst characterization.

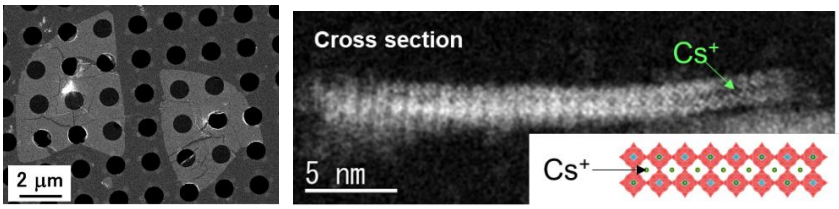
One of my research interests is high-resolution imaging of catalytic materials by (scanning) transmission electron microscopy ((S)TEM). (S)TEM is effective in investigating molecular arrangement of polyoxometalates, though polyoxometalates are electron beam-sensitive and difficult to observe. Defect structures of Keggin-type polyoxometalate crystallites were elucidated by direct observation using STEM [1].

I am also interested in the development of catalytic materials. Keggin-type polyoxometalate nanosheets were synthesized and their structures were determined by STEM [2].

In addition, I have been collaborating with some research groups in the (S)TEM observation of catalytic materials including polyoxometalates, zeolites, supported metal catalysts, and various nanomaterials.



STEM images of $Cs_xH_{4-x}SiW_{12}O_{40}$ [1]



STEM images of Keggin-type polyoxometalate nanosheets [2]

[1] N. Hiyoshi and Y. Kamiya, *Chem. Commun.*, 2015, **51**, 9975-9978.

[2] N. Hiyoshi, *Chem. Commun.*, 2018, **54**, 5217-5220.