

Description of Additional Supplementary Files

File name: Supplementary Movie 1

Description: Isosurface rendering of the reconstructed 3D phase map (pale yellow) of the Pt/CZ-*x* particles, and the Ce valence map between Ce³⁺ and Ce⁴⁺ (white-red-yellow-green-blue).

The size of the reconstructed voxels is 14 nm.