Electronic Supplementary Information (ESI).

Novel Standing Ni-Pt alloy Nanocubes



Figure S1. TEM image of large cubic shaped particle.



¹⁰ **Figure S2.** This sample synthesized by the polyol process is composed mainly by fcc metallic phase with lattice constant a = 0.3551 nm. This value is larger than a = 0.3524 nm of bulk α -Ni, and it indicates a formation of fcc structured Ni alloy with Pt. In the profile of XRD pattern, broad fcc peak pattern overlapped with the sharp fcc diffractions

15 and very broad shoulder on lower angle side of (111) peak and a broad peak at diffraction angle around 62 degree corresponding to nickel oxide are observed.



²⁰ **Figure S3.** The k^3 weighted Ni K EXAFS spectrum along with that of nickel metal foil as reference. The profile of EXAFS spectrum of the sample is similar to that for bulk Ni though its oscillation amplitude is relatively smaller.



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Figure S4. The radial structure functions obtained by Fourier transformation of the EXAFS spectra shown in Figure S3. Although shape of the profile indicates that the environmental atomic arrangement around nickel in the sample is similar to that of fcc metallic Ni reference, amplitude of the profile is smaller. This is considered reflecting a local distortion and variation in interatomic distances of first neighboring Ni-Ni pair due to intercalation of platinum atom into the fcc lattice, and small amount presence of oxide phase with low crystallinity.