Electronic Supplementary Material (ESI) for Nanoscale.

Supporting information
Bridging the Gap: 3D Real-Space Characterization of Colloidal Assemblies via FIB-SEM Tomography

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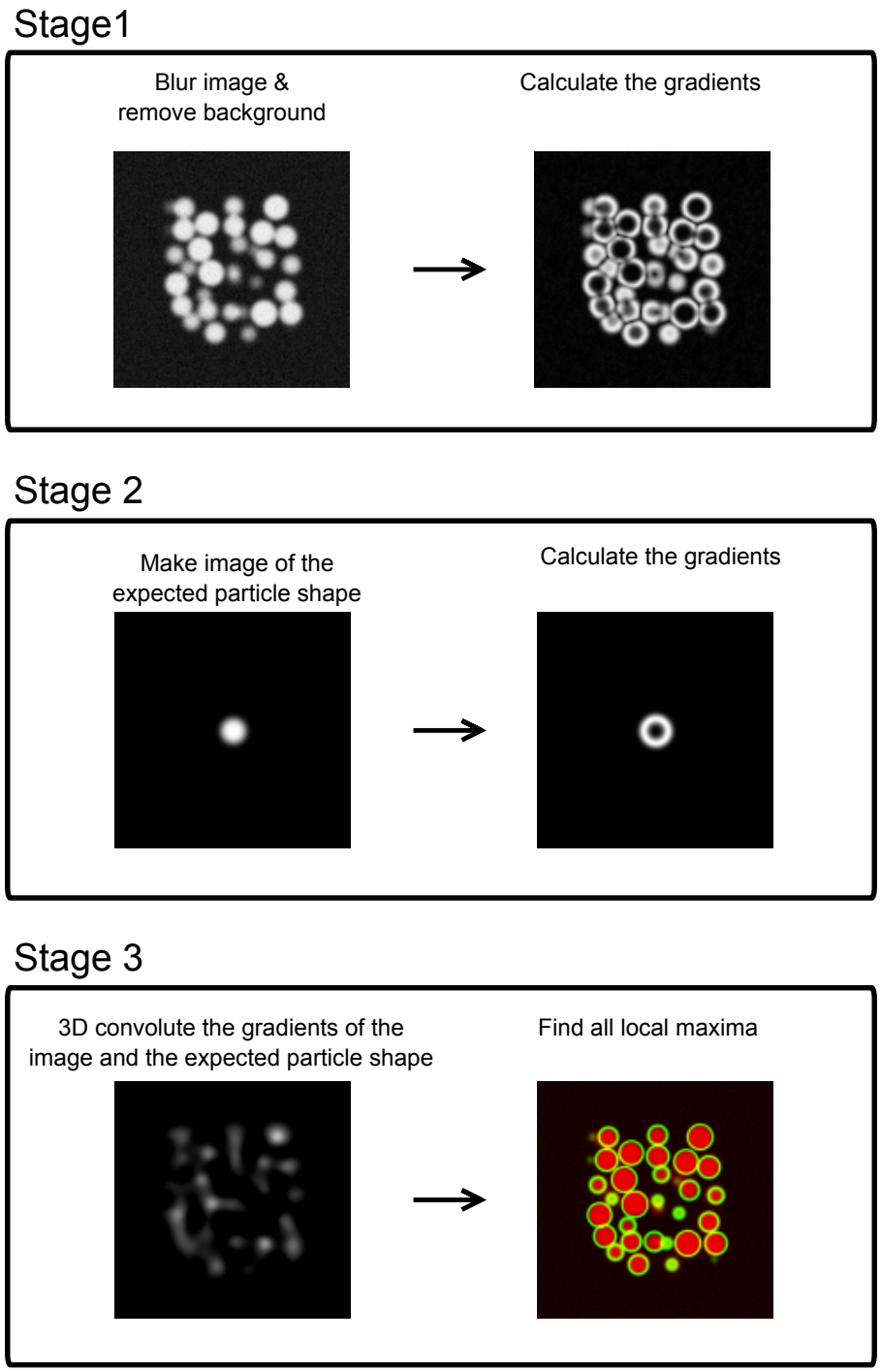

Figure S1: **Stepwise overview of the gradient tracking procedure.** Stage 1: blurring the image, removal of the background and calculation of the gradients in 3D. Stage 2: image generation of expected particle shape and calculation of 3D gradients. Stage 3: 3D convolution of the gradients in the original image and the expected particle shape in 3D, and identification of the local maxima.

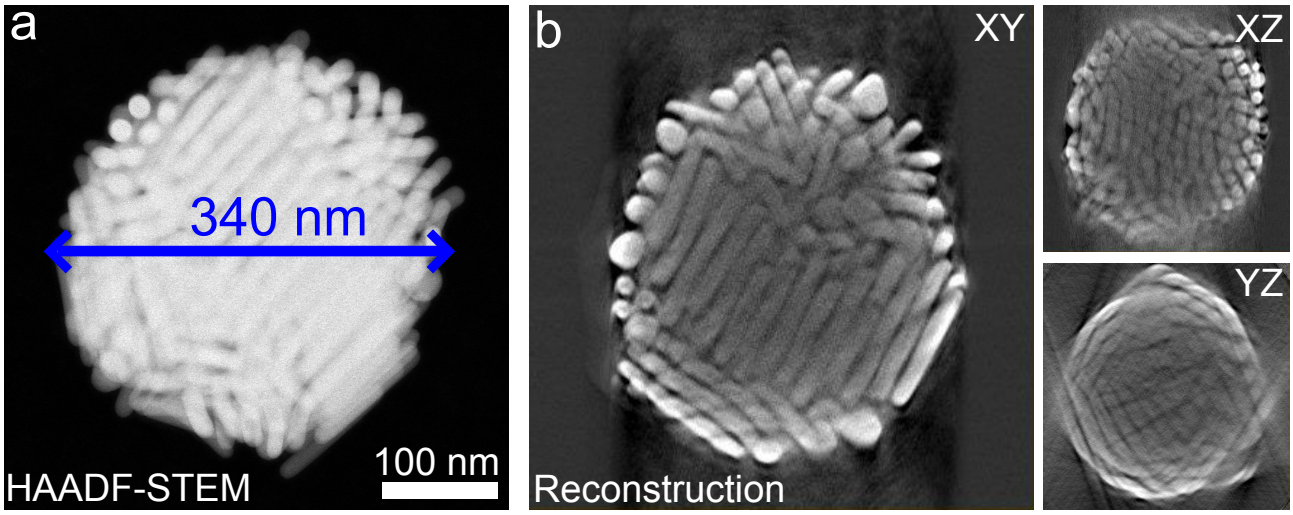

Figure S2: **Transmission electron tomography result for AuNR assembly with d =340 nm, which is too large for a reliable reconstruction.** a) 0° tilt image, acquired in HAADF-STEM mode. b) XY, XZ and YZ views of the 3D reconstruction. The tilt series was acquired from -70 to +70 °with a tilt step of 2°. The full tomogram can be view in **Movie S12**.

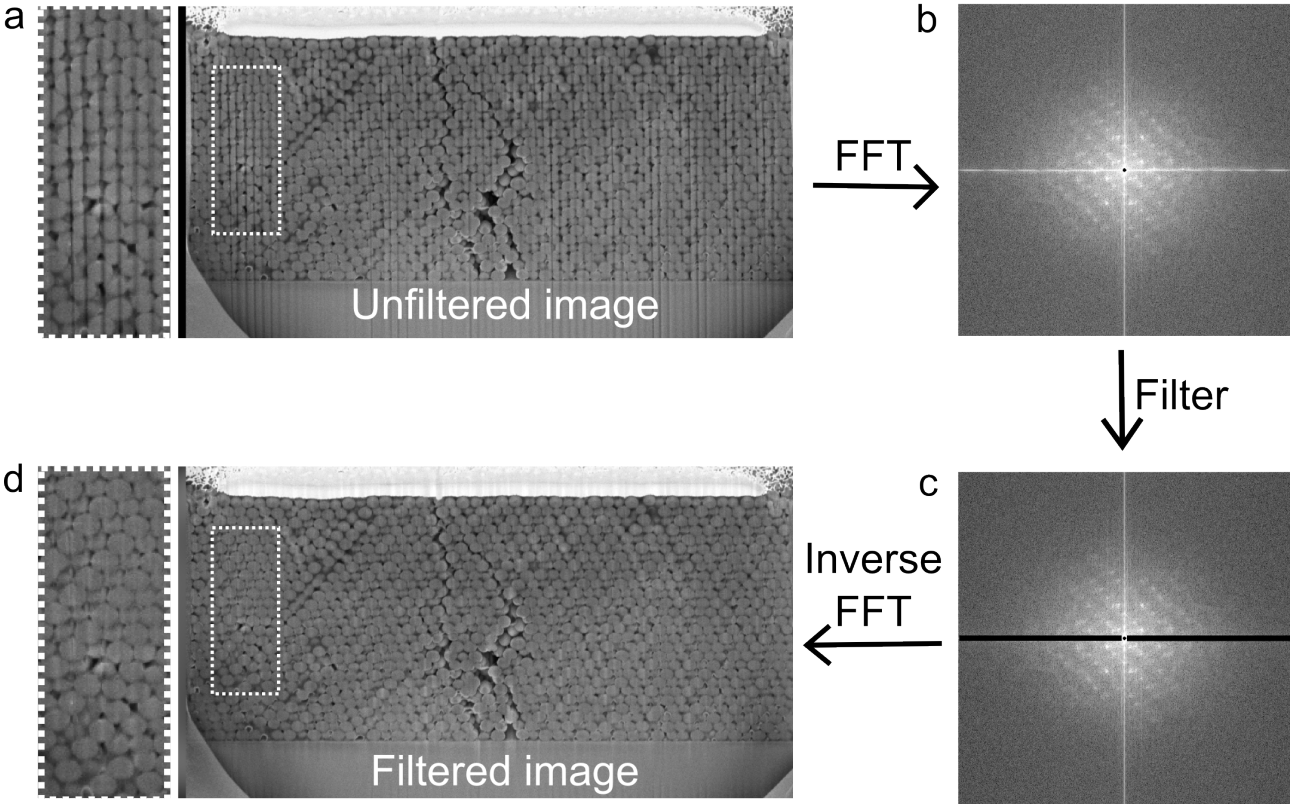

Figure S3: **The FFT filtering procedure to remove curtaining stripes**. a) Unfiltered image of colloidal crystal consisting of silica spheres (d = 531 nm). b) FFT of the image in a. c) Filtered FFT. d) The filtered image without curtaining stripes, after preforming an inverse FFT of c.

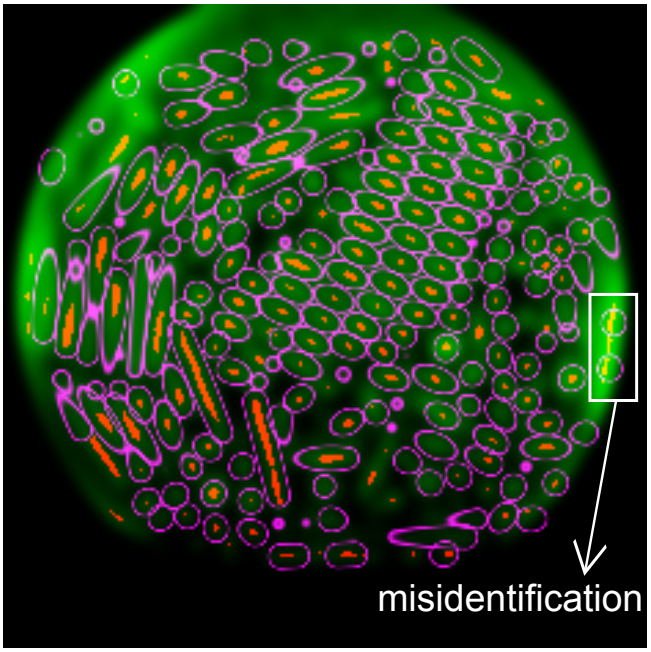

Figure S4: **Misidentification of AuNRs near the Pt layer, due to poor contrast.** The rod tracking code is not capable of reliably identifying the orientation and position of the nanoparticles close to the outer Pt layer, as indicated by the arrow.