Supplementary Information

In situ engineering of NanoBud geometries

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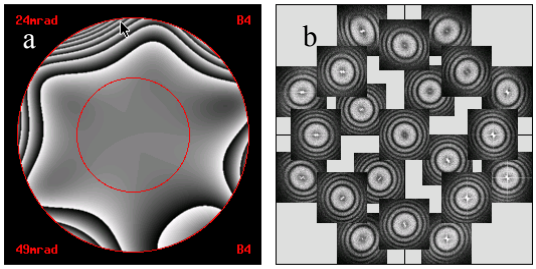
Transmission Electron Microscopy

High resolution imaging was at 80kV was carried out using the Oxford JEOL JEM-2200MCO aberration-corrected, field-emission gun transmission electron microscope. A Gatan Ultrascan 4k x 4k CCD camera was used for image recording, at 1 second acquisition times.

Aberration correction was undertaken analysing a phase plate (figure S1 a) resolved from a tableau of diffractograms taken a varying incident beam tilts (figure S1 b). Table S1 shows resulting values of beam aberrations prior to recording images.



Aberration	Value
C1 – Defocus	-187.7 nm
A1 – 2-fold Astigmatism	901. 7 pm
A2 – 3-fold Astigmatism	38.77 nm
B2 – Coma	18.71 nm
C3 – 3rd order spherical aberration	-1.638 µm
A3 – 4-fold astigmatism	388.4 nm
S3 – Star aberration	379.8 nm

Figure S1: (a) Phase plate analysis of (b) 21 diffractograms in tableau. **Table S1**: Corresponding aberration values prior to image sequence.

NanoBud transformation was observed under beam irradiation, in real time at ambient temperature.