Supporting Information

Pencil-like Ag Nanorods Asymmetrically Capped by Pd

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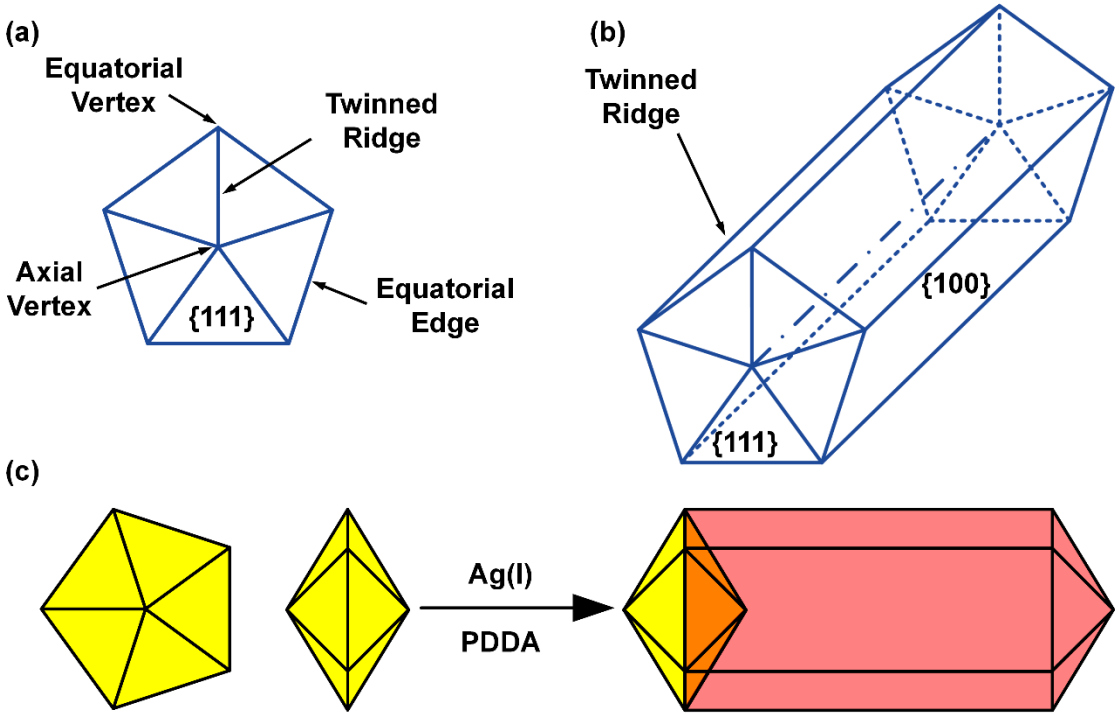

Figure S1. Schematic illustration and definitions of the various features on (a) a decahedron and (b) a penta-twinned nanorod. (c) Schematic illustrating the growth of an Ag nanorod from a Pd decahedral seed. The yellow and red colors represent Pd and Ag, respectively.

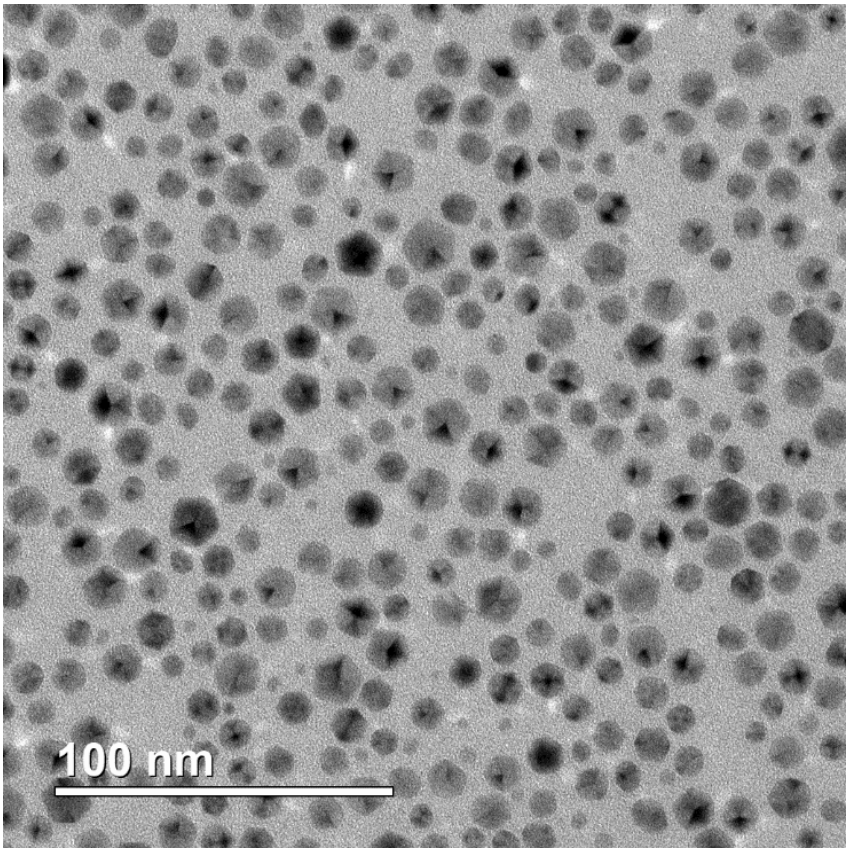

Figure S2. A typical TEM image of the Pd decahedral seeds used for the synthesis of Pd-Ag penta-twinned nanorods.

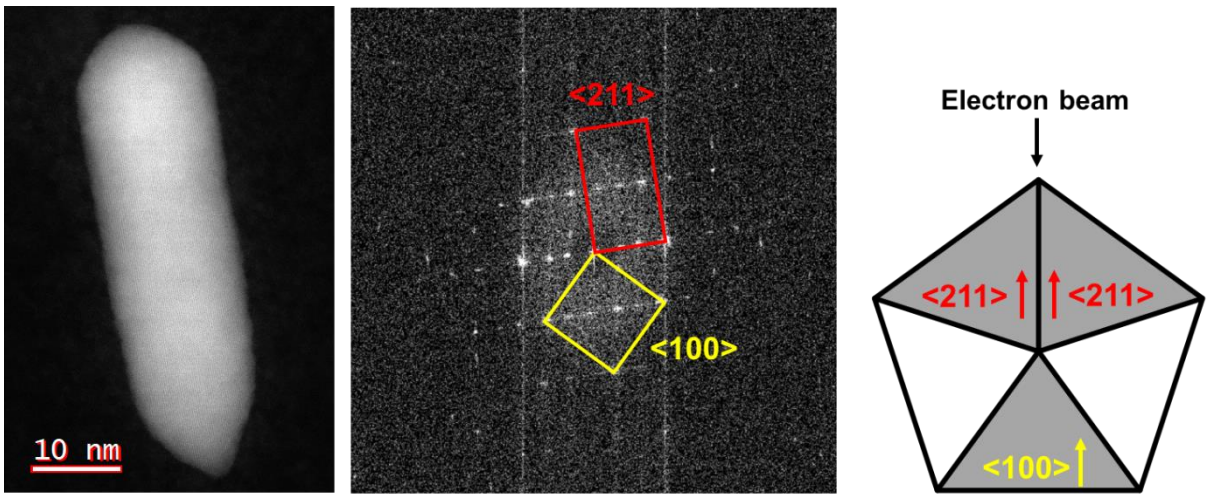

Figure S3. HAADF-STEM image of an etched Pd-Ag nanorod and the corresponding Fourier transform pattern when the electron beam was aligned parallel to the <211>/<100> zone axis.

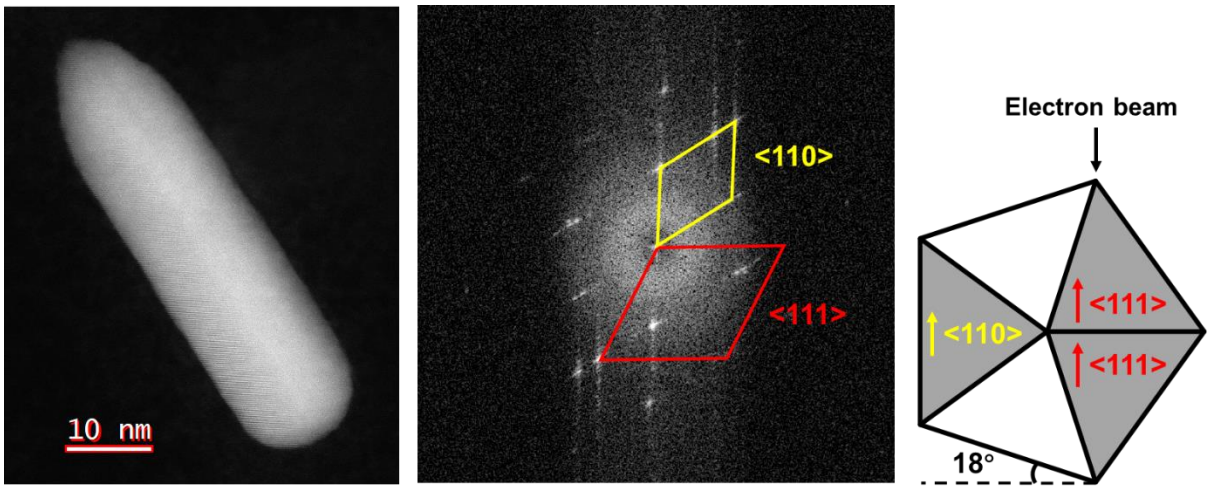

Figure S4. HAADF-STEM image of an etched Pd-Ag nanorod and the corresponding Fourier transform pattern when the electron beam was aligned parallel to the <110>/<111> zone axis.

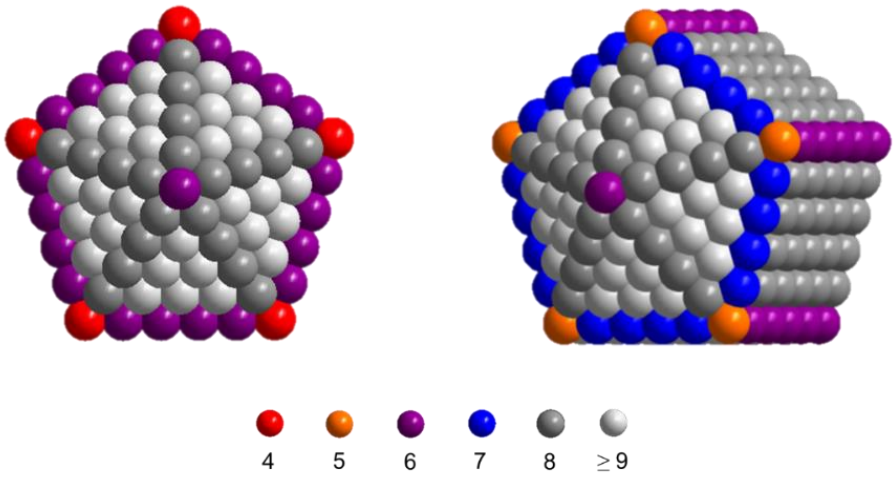

Figure S5. Atomic model of a decahedron and one end of a penta-twinned nanorod. Note that the coordination numbers of the atoms are coded by their colors.

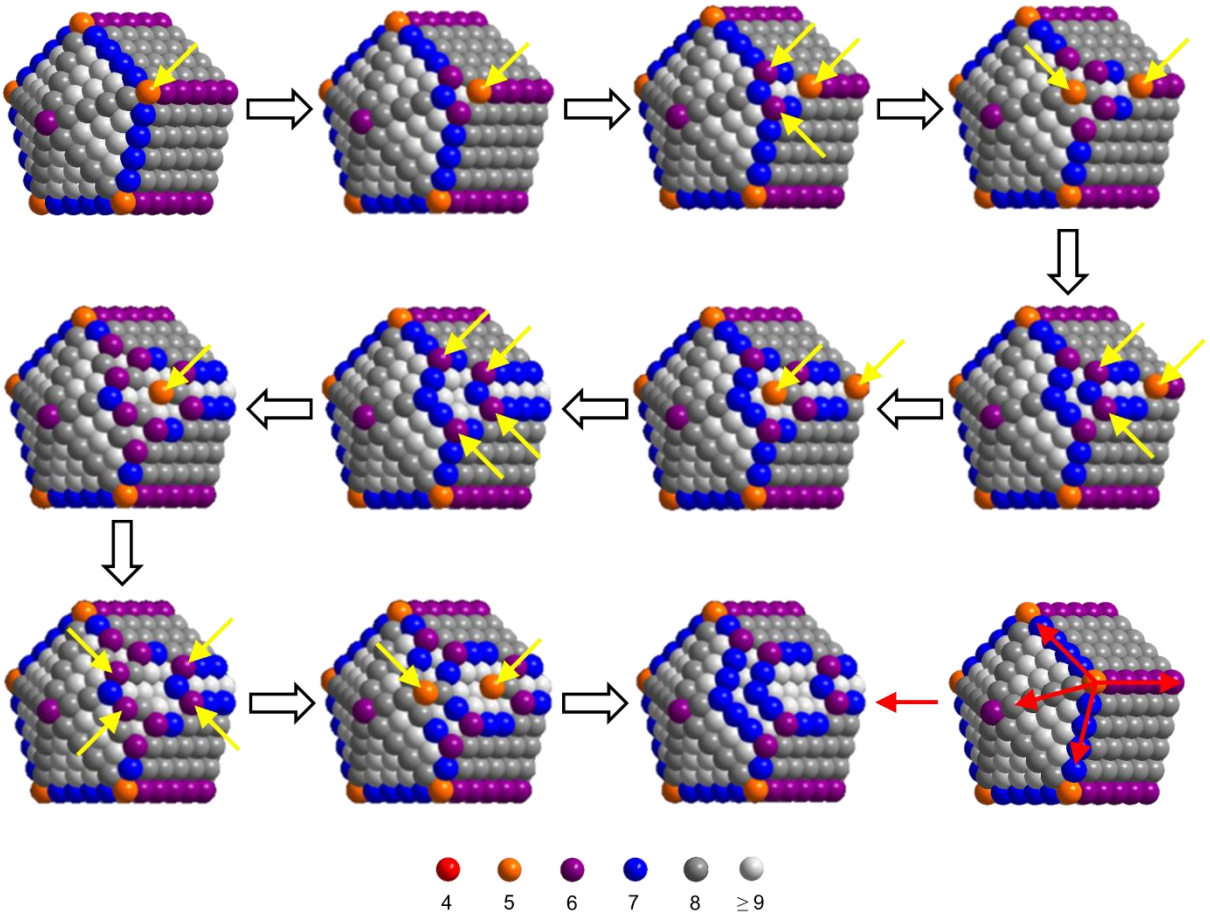

Figure S6. An idealized model of the etching process that starts from one of the equatorial vertices of a penta-twinned nanorod. The atom marked on the twinned ridge is supposed to be etched first due to its lowest coordination number and thus highest free energy.

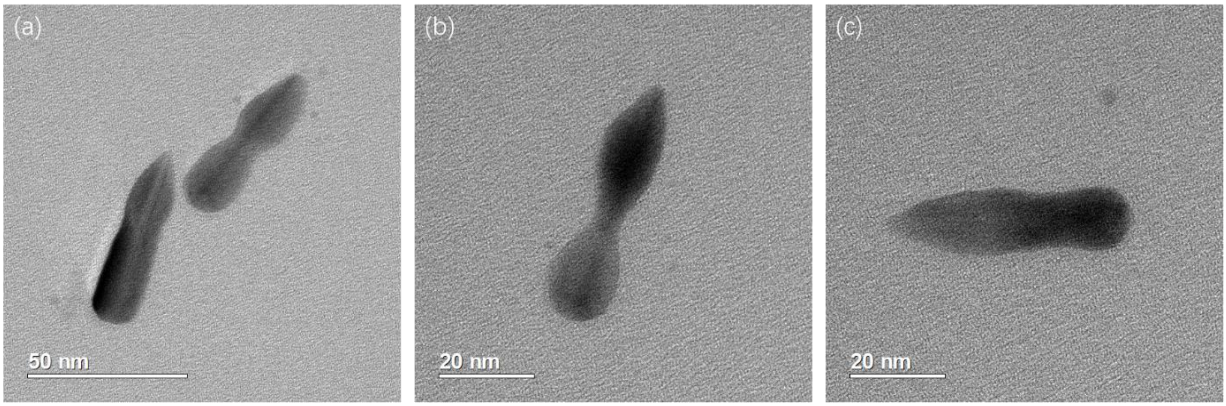

Figure S7. TEM images of the etched Pd-Ag nanorods featuring a peanut-like morphology.