Electronic Supplementary Material (ESI) for Nanoscale


# A General Single-Pot Heating Method for Morphology, Size and Luminescence-Controllable Synthesis of Colloidal ZnO Nanocrystals

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# Supporting Information:

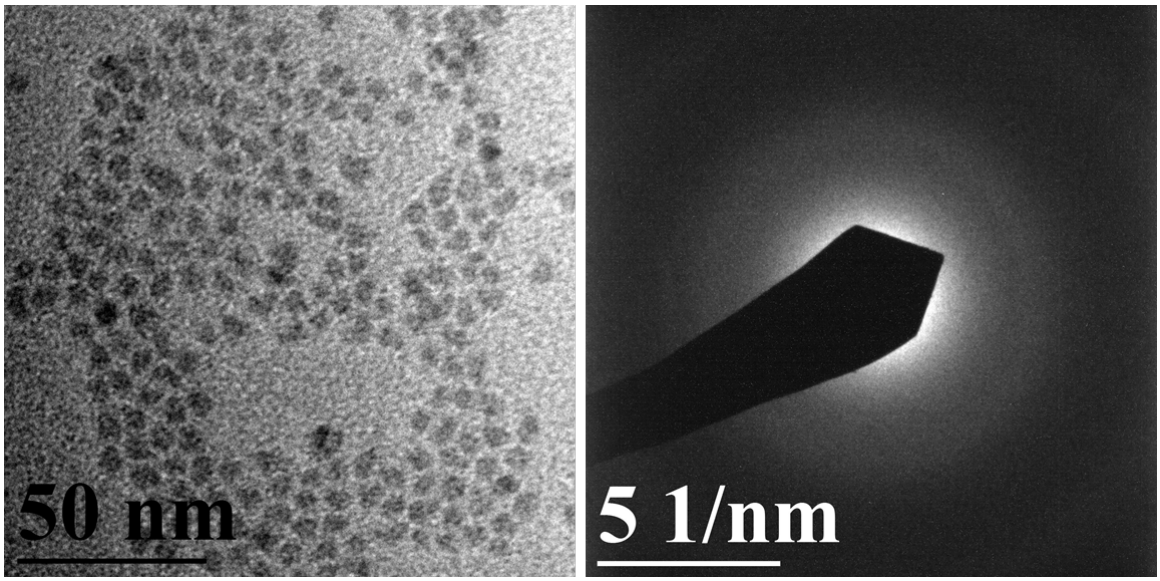


**Figure S1.** TEM image (left panel) showing quasi-spherical ZnO NPs synthesized in the presence of TOPO, benzyl ether and hexadecanediol. Selected-area electron diffraction (SAED, right panel) showed that these ZnO NPs had poor crystallinity.

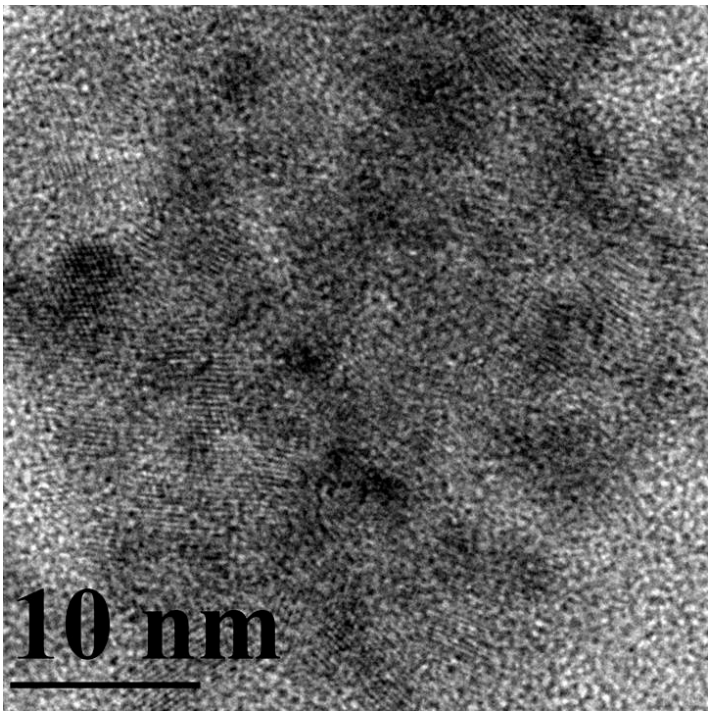


**Figure S2.** HRTEM image showing that the ZnO NPs with pinecone morphology were composed of small ZnO nanocrystals.

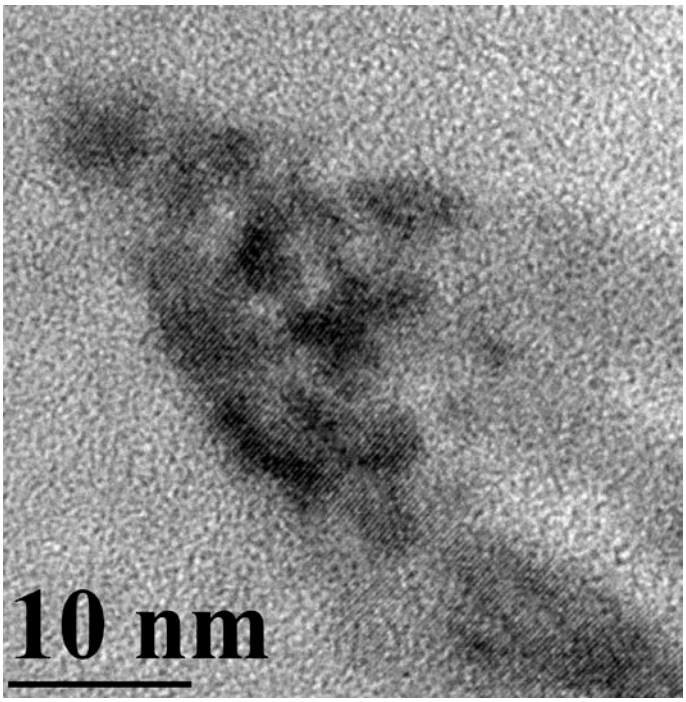


**Figure S3.** HRTEM image showing dendritic ZnO NCs synthesized by thermolysis of 300 mg $Zn(acac)_2$ in the presence of 2.2 g TOPO, 7 mL benzyl ether and 736 mg octadecanol at 290 °C

## *Synthesis of ZnO NPs using only oleylamine as ligand*

150 mg $Zn(acac)_2$, 2.625 mL oleylamine, 7 mL benzyl ether and 367 mg hexadecanediol were mixed together. The mixture was heated to 250 °C and kept at this temperature for 1hr.

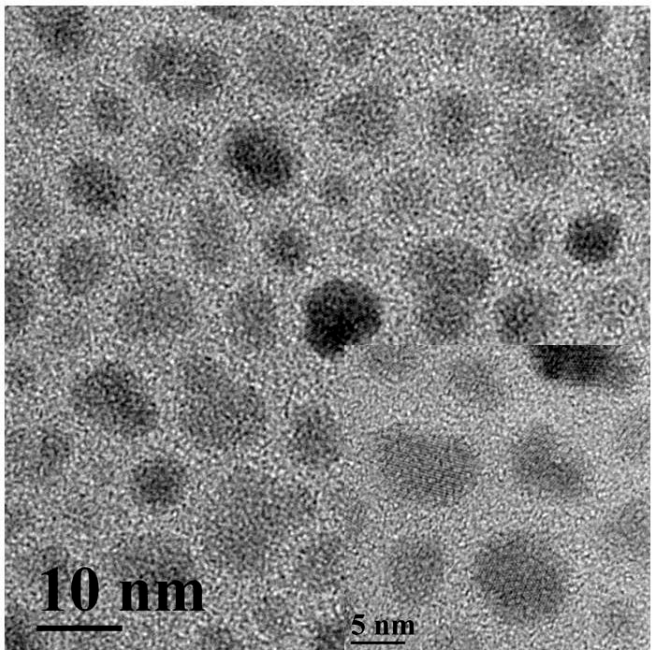


**Figure S4.** TEM and HRTEM (inset) of ZnO NPs synthesized using only OAm as ligand.

## *Synthesis of ZnO NPs using only dodecylamine as ligand*

150 mg $Zn(acac)_2$ precursor was mixed with 738 mg dodeclyamine, 367 mg hexadecanediol and 7 ml benzyl ether. The solution was heated to 295 ˚C and kept at this temperature for 60 min.

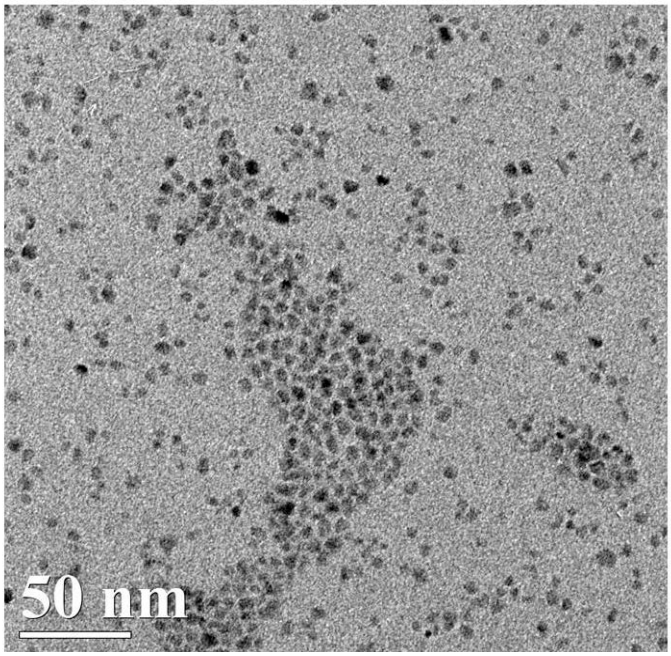


**Figure S5.** TEM of ZnO NPs synthesized using only dodecylamine as ligand.

## *Synthesis of ZnO NPs using TOPO and OAm as the ligands*

150 mg $Zn(acac)_2$ precursor was mixed with 1.55 g TOPO, 2.5 ml OAm and 735 mg hexadecanediol. The solution was heated to 205 ˚C and kept at this temperature for 30 min.

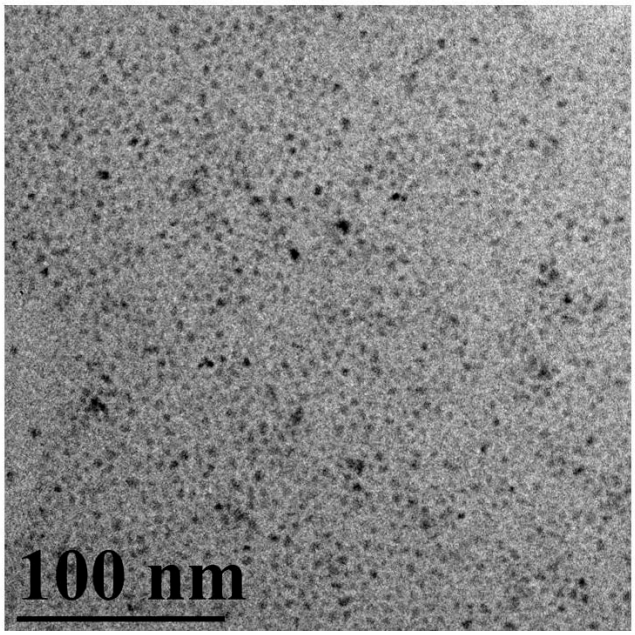


**Figure S6.** TEM of ZnO NPs synthesized using TOPO and OAm as ligands.