Figure 4.7 Micrographs of ZnO tetrapods grown on silicon substrate by vapor-phase-deposition at 950ºC for 10min in H₂O₂ atmosphere. a) Low magnification, top view image of the tetrapods aggregation. b) A face-on view image of the bat-shape ZnO tetrapods. c) A bat-shape ZnO tetrapods. d) High magnification, title view image of the single rod of bat-shape T-ZnO. e) A bright-field TEM image of the bat-shape T-ZnO nanorod. f) A [1216] zone-axis diffraction pattern of Fig. 4.7e.
Figure 4.8 Micrographs of ZnO tetrapods grown on silicon substrate by vapor-phase-deposition at 950°C for 10 min in H₂O₂ atmosphere. a) Top view image of large yield tetrapods on the substrate. b) Bamboo-shape ZnO tetrapods. c) Bottle-shape ZnO tetrapods. d) Face-on view image of the ZnO tetrapods with trumpet-shape arms.
Figure 4.9 SEM micrographs of multi-rods ZnO crystals. a) Bat-shape ZnO multi-rods. b) Needle-shape ZnO multi-rods. c) Low magnification, face-on view image of multi-rods ZnO crystals. d) Freestanding anemone-shape ZnO crystal.

Figure 4.10 A schematic chart of the oxygen concentration vs. the ratio of basal plane growth to c-axis growth.

For ZnO tetrapods

Various morphology of T-ZnO

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<th>(In H₂O)</th>
<th>(In H₂O₂)</th>
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Oxygen Concentration

Figure 4.10 A schematic chart of the oxygen concentration vs. the ratio of basal plane growth to c-axis growth.
Figure 4.11 SEM micrographs correspond to CL spectra for ZnO tetrapods synthesized in air atmosphere. The ZnO tetrapods dispersed on the Cu net for TEM recorded. a) The arrow in Fig. 4.11a points to CL detection for the individual ZnO tetrapods crystal. b) CL spectrum of the individual ZnO tetrapods in Fig.4.11a.
Figure 4.12 SEM micrographs of the ZnO tetrapods with similar diameter in shape by synthesized in H\textsubscript{2}O atmosphere correspond to CL spectra. 

a) Face-on view image of the freestanding ZnO tetrapods. 

b) CL spectrum of the single ZnO tetrapods in Fig. 4.12a. 

c) Face-on view image of the single ZnO tetrapods. 

d) The arrow in Fig. 4.12c points to CL detection for the individual ZnO tetrapods. 

e) Face-on view image of the aggregately ZnO tetrapods. 

f) The arrow in Fig. 4.12e points to CL detection for the individual ZnO tetrapods.
Figure 4.13 SEM micrographs and corresponding to CL spectra of ZnO tetrapods synthesized in H₂O₂ atmosphere. 

- **a)** Face-on view image of the freestanding ZnO tetrapods. 
- **b)** The arrow in Fig. 4.13a indicates the point to CL detection of the freestanding ZnO tetrapods. 
- **c)** Top view image of the single ZnO tetrapods. 
- **d)** The arrow in Fig. 4.13c indicates the point to CL detection for the individual ZnO tetrapods. 
- **e)** Face-on view image of the aggregately ZnO tetrapods. 
- **f)** The arrow in Fig. 4.13e points to CL detection for the individual ZnO tetrapods.
Figure 4.14 SEM micrographs and corresponding to CL spectra of ZnO tetrapods synthesized in H$_2$O$_2$ atmosphere. a) Face-on view image of the freestanding ZnO tetrapods. b) The arrow in Fig. 4.14a points to CL detection for the individual ZnO tetrapods. c) Aggregated bell-shape ZnO crystals. d) The arrow in Fig. 4.14c points to CL detection for the individual ZnO crystal. e) Freestanding diamond-shape ZnO crystal. f) The arrow in Fig. 4.14e points to CL detection of the individual ZnO crystal.
Figure 4.15 ZnO tetrapods synthesized in three ambiences exhibited different PL spectra.