

### **Figure captions for supplementary information**

Fig. s1. Outline of the procedure for the infiltration of nanoparticles into an opal template by electrophoresis. An ITO substrate covered with a polystyrene opal film was used as the working electrode, and a platinum plate was used as the counter electrode. The nanoparticles are in an aqueous suspension.

Fig. s2. Wide-view SEM image of an inverse opal prepared with silica nanoparticles. The size of the polystyrene spheres used in the template was 426 nm.

Fig. s3. Wide-view SEM image of an inverse opal prepared with silica nanoparticles. The size of the polystyrene spheres used in the template was 640 nm.

Fig. s4. SEM image of an inverse opal prepared using titania nanoparticles. The size of the polystyrene spheres used in the template was 426 nm.

Fig. s5. Photographs of a silica inverse opal (template sphere size, 263 nm) and a titania inverse opal (template sphere size, 426 nm) on ITO substrates.

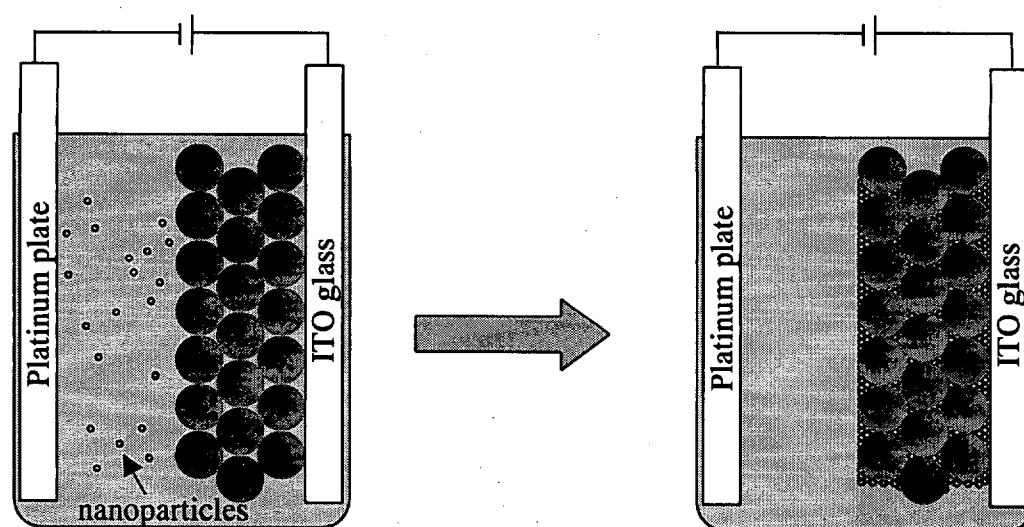


Fig. S1

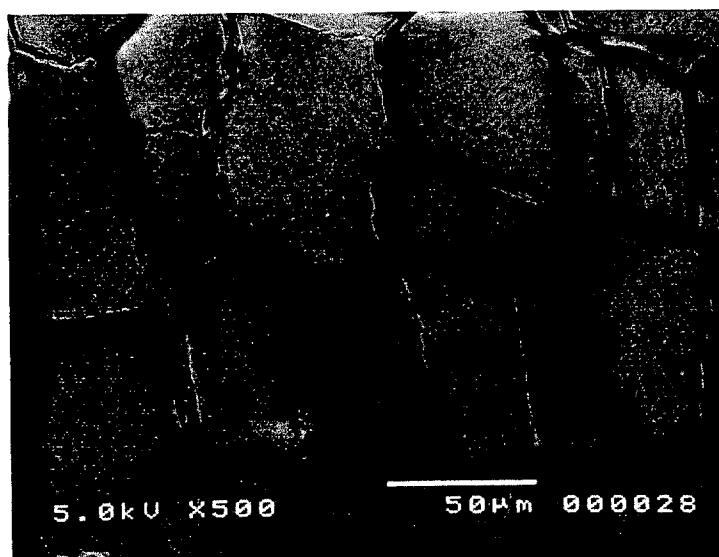


Fig. S2

