Substrate surface roughness-dependent 3-D complex nanoarchitectures of gold particles from directed electrodeposition

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**Supporting Information**

**Figure S1.** XRD patterns of ITO/glass substrates without pretreatment (a) and with pretreatment according to the above mentioned four different methods (b).
Figure S2. The effect of Variation of the deposition potential on synthesis of Au nanocomplex structure using a bare ITO/glass substrate without pretreatment with a deposition time of 30 min: (a) 0.7 V; (b) 1.0 V.
**Figure S3.** Typical SEM images of Pt/Au particles grown on different ITO/glass substrate surfaces. (a) RTP. (b) Polished by microcloth®. (c) 98%H₂SO₄/30%H₂O₂. (d) NaHCO₃ aqueous.