Electrochemiluminescence: new materials and devices

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Electrochemiluminescence (ECL), also called electrogenerated chemiluminescence, is a light-emitting phenomenon resulting from electrochemical reactions. It has been extensively using in immunoassays, DNA probe assays, aptasensors, enzymatic biosensors, coreactant detection, light-emitting devices, drug screening, and so on. ECL detection depends on ECL devices, luminophores, coreactants, electrocatalysts, and quenchers [1-4].
Herein, we report our recent progress on the development of some new materials, such as luminophores (e.g. $[Ru(bpy)_2dppz]^{2+}$), coreactants (*e.g.* 2-(dibutylamino)ethanol), electrodes (e.g. stainless steel electrode), and electrocatalysts (e.g. noble metal nanocrystal electrocatalyst with high-index facets (Fig. 1, Left), as well as devices (e.g. wireless ECL devices (Fig. 1, Right), single –electrode ECL device)[5-12].

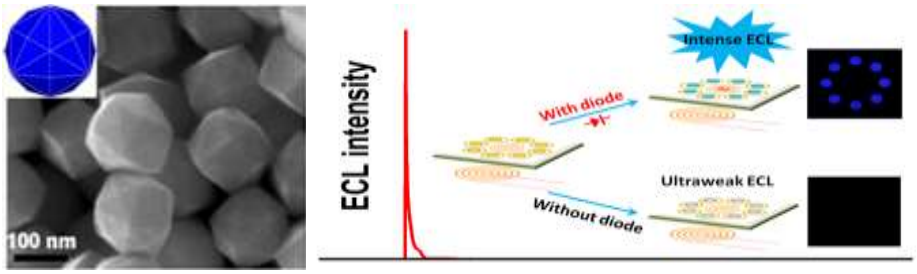

Figure 1. SEM image of convex hexoctahedral palladium@gold core-shell nanocrystals with {431} high-index facets and scheme of wireless ECL device.

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