



Novel class of phosphorescent compounds for OLED applications

Several new classes of phosphorescent dopants for OLED's have been developed. The compounds are based on gold in a particular oxidation state that has been rarely investigated due to the expected instability arising from the basic structure. The compounds are stable and the emission properties can be tuned in a facile fashion by modifying the ligands.

Keywords OLED, Phosphorescence, Transition metal, Photovoltaics, Sensors

Inventors K. Venkatesan, J. Garg and A. Szentkuti, Institute of Inorganic Chemistry, University of Zürich, Switzerland.

Reference J. Garg et.al., Inorg. Chem. 2010, 49, 11463; J. Garg et. Al., Inorg. Chem. 2011, dx.doi.org/10.1021 /ic102216v.

Background Phosphorescent OLED's are significantly advantageous compared to conventional fluorescent OLED's. Platinum and iridium based compounds have been the most prominently used triplet phosphors. Other metal centers have been scarcely researched due to their stability concerns and their complex chemistry. Although significant progress and achievements have been made towards accomplishing high luminescent efficiencies, there is considerable room for development in the area of triplet phosphors.

Invention Several new classes of phosphorescent dopants that luminesce at room temperature with excited-state life times between 0.5 – 2 μ s based on gold metal center has been developed. The efficient synthesis combined with a modular tunable emission colors offers great scope for improving quantum efficiencies expanding and exploring a palette of new triplet phosphors.

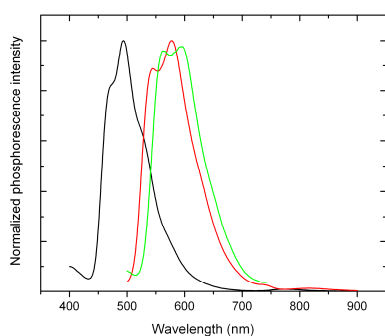


Figure 1. Phosphorescence emission spectra (left) and phosphorescence emission in solution (right).

Fields of Use OLEDs, Photovoltaics, Sensors.

Patent Status Patent application filed

Contact *Unitectra, Technology Transfer of University Zurich, Dr. W. Henggeler, Möhrlistrasse 23, CH-8006 Zürich, +41 1 634 44 01, mail@unitectra.ch*