AzTE Arizona Technology Enterprises

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OLED Materials

AzTE Case #M07-032

Inventors

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Chemical and Materials Engineering

Background

Organic materials can perform in numerous optoelectronic applications for the processing of light: light emission (i.e. electroluminescent devices), light absorption (i.e. solar cells), light modulation, wavelength conversion, and wave guiding. Organic optoelectronic components typically employ a layered structure of at least one light processing (or active) layer between two electrode layers. For light emission, it is desirable to provide a broader optical emission range extending from the visible wavelength range to near-infrared wavelengths. For light absorption, it is desirable to provide increased absorption in absorbing materials in order to provide a higher optical-to-electrical energy conversion efficiency.

Invention Description

Researchers at Arizona State University have developed organic materials having strong phosphorescent emission in the near infrared region (i.e., from about 650 nm to about 2000 nm, or from about 650 nm to about 1000 nm) using organometallic complexes. These complexes offer high efficiency, wavelength-tunable phosphorescent emitters in the fabrication of near infrared phosphorescent organic light emitting devices (PhOLEDs) and/or as absorbers in organic solar cells.

Intellectual Property Status:

Patent Pending

Potential Applications

- **Night Vision Devices**
- **Military**
- **Security**
- **Bio-imaging**
- **Display Units (digital cameras, mp3 players, etc)**
- **Auto Industry**

Benefits and Advantages

- **High Device Efficiency**
- **Wavelength Tunable**
- **IR emission for the first time**
- **Improved Lifetime (Stability)**
- **Easy to Synthesize**

Contact

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