Luminescence Electronic Devices using Lanthanum-Yttrium Oxides

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Technology description

Technology Need

Specialists in the field of luminescence devices demand higher and better luminescence power, precision, intensity, resolution and sensitivity. However, these improvements come with higher instabilities and cost. This creates a need for more affordable and stable luminescence electronic devices such as medical devices, medical imaging, radiation detection devices or even TV monitors. Addressing these needs would result to a more precise and accurate medical and radiation detection diagnostic devices.

Invention Description/Solution

Researchers at UTA have discovered a novel technology that utilizes the scintillation luminescence properties contained in lanthanum-Yttrium oxides (LaYO3). It is used to detect radiations such as alpha, gamma beta, neutron, cosmic ray or any high energy particles. The parent oxides also come with excellent luminescence power that can be implemented in medical imaging such as X-ray intensifier, detectors for computed Tomography (CT), position-emission tomography (PET) and computed radiography (CR). These scintillators are chemically stable and cheap to make, therefore the implementation of LaYO3 in luminescence electronic devices can help resolve the problem of cost and instability.

Application area

Radiation detection
X-ray scanning
CT scanning
PET scanning
CR scanning
TV display
Computer display

Advantages

Excellent scintillation properties
Excellent luminescence properties
High thermal conductivity
Broad transparency range
High chemical stability
Low manufacturing cost

Institution

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