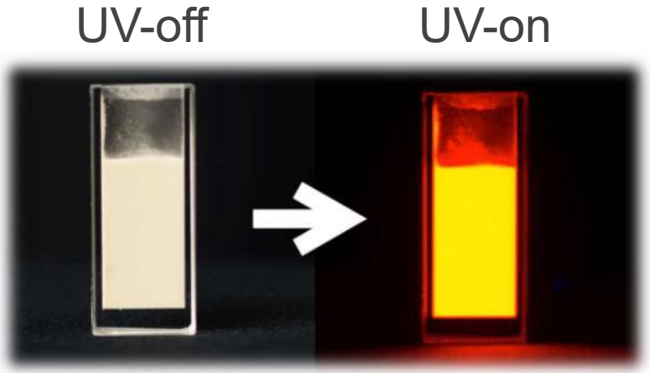
Hokkaido Univ. Technology

Red light emitter (ultraviolet light excitation type)

Europium light emitting body having high brightness and high heat resistance



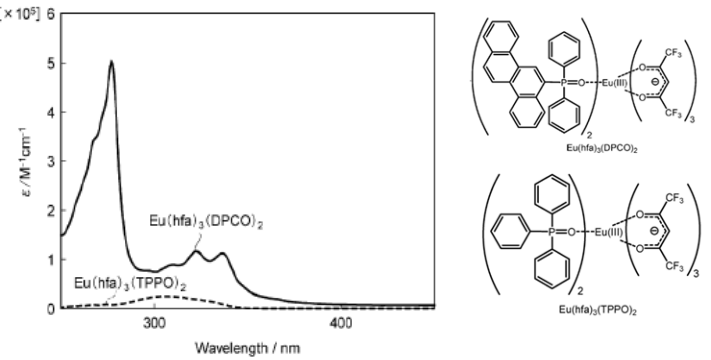
Overview

Phosphors are used in lighting and displays, and in recent years, fluorescent dyes, as well as inorganic phosphors, have been attracting attention. Organic-inorganic hybrid materials composed of organic molecules and rare earth elements **emit strong light when excited by ultraviolet light and have high color purity**, making them promising for use in lighting effects that are more beautiful than conventional light-emitting materials.

The present invention relates to a rare earth complex composed of europium (Eu) and organic molecules. By introducing a fused polycyclic aromatic group into the ligand of this complex, it has a large molar absorption coefficient for visible ultraviolet light, highly efficient energy transfer to Eu(III), and **high-intensity emission**. This complex also has **high heat resistance, approaching 300℃.**

Features・Outstandings

Figure : UV-visible light absorption spectrum of $Eu(hfa)_3(TPPO)_2$ of the present invention. $Eu(hfa)_3(DPCO)_2$ has a high UV absorption capacity with a maximum molar absorption coefficient of approximately $5 \times 105 cm^{-1}M^{-1}$.



Product Application

- ☐ Light sources such as lighting
- ☐ Security, stealth ink materials
- ☐ Luminous glass (e.g. head-up display)

Related Works

[1] Y. Kitagawa et al., Inorg. Chem. 59, 5865 (2020).
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IP Data

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