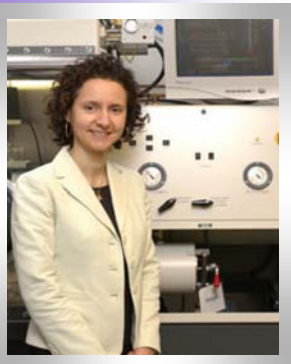


Pybox lanthanide complexes for luminescence



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Invention

Metal ions of the lanthanide series have generated great interest due to their intense brightness and color purity during light emission. Current applications of the pyridine-bis(oxazoline) (pybox) moiety focus on its use as a catalyst, but no research has considered its role as a sensitizer. This invention presents pybox lanthanide complexes, methods of making them, and the use of pybox as an optimized chelating moiety and sensitizer for lanthanide ion luminescence.



Technology

This invention relates to the structure-property relationships between ligands and metal complexes and the efficiency of light emission. In particular, pybox-based ligands, lanthanide ion complexes of pybox, and the use of pybox as a sensitizing moiety are optimized. A chelator is created appropriate for coordinating Ln(III) ions and forming 3:1 complexes with pybox.

Applications

- LEDs
- Fluoroimmunoassays
- Sensors
- Luminescent tags

Advantages

- Control of emitted wavelength, enabling purer color emission
- Greater duration of light emission, facilitating detection and quantification
- Ability to control binding to specific chemical substances
- Greater energy efficiency
- Stability in solution

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