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► **To cite this version:**

Annika Sickinger, Olivier Maury, François Riobé. Lanthanides Circularly Polarised Luminescence: Influence of temperature on the dissymmetry factor. 11th International Conference on F elements, Université de Strasbourg; CNRS, Aug 2023, Strasbourg, France. hal-04622592

HAL Id: hal-04622592

<https://hal.science/hal-04622592v1>

Submitted on 24 Jun 2024

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T4. Spectroscopy

Lanthanides Circularly Polarised Luminescence: Influence of temperature on the dissymmetry factor

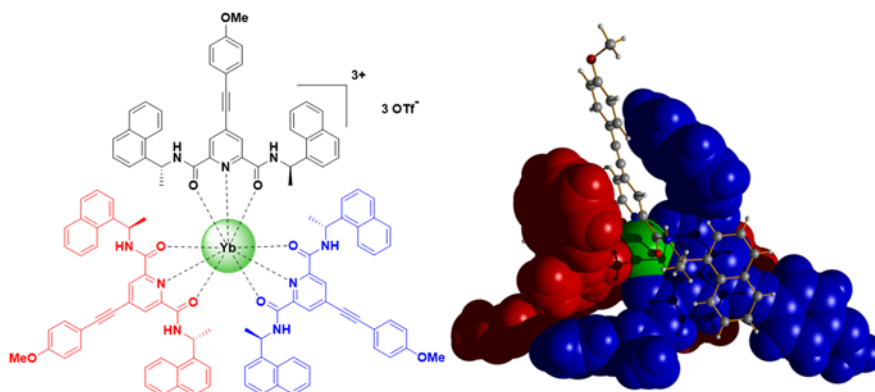
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The renewed interest in circularly polarised luminescence (CPL), the emission asymmetry observed for chiral luminescent molecules, is fuelled by potential applications such as new bioprobes for microscopy or optimized dyes for OLED displays. To that aim, lanthanide(III) complexes are today the most promising emitters. While a race for the highest dissymmetry factor (g_{lum}) is underway, there is a need for fundamental studies on chemical models that will determine the characteristics needed to achieve intense CPL including the influence of the external conditions on the emitter (medium, temperature...).

In recent years, we have studied different series of bright lanthanide complexes emitting in the visible and the near-IR. In particular, thanks to the development of a fast CPL spectrometer,¹ well resolved CPL spectrum of an helical Yb(III) complex was obtained.² Our later studies evidence the influence of experimental parameters on the determination of the CPL, in particular the influence of the temperature. More generally, it led us to rethink the definition of the g_{lum} .



Chemical structure and 3D-representation of the helical Yb³⁺-complex.

References

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