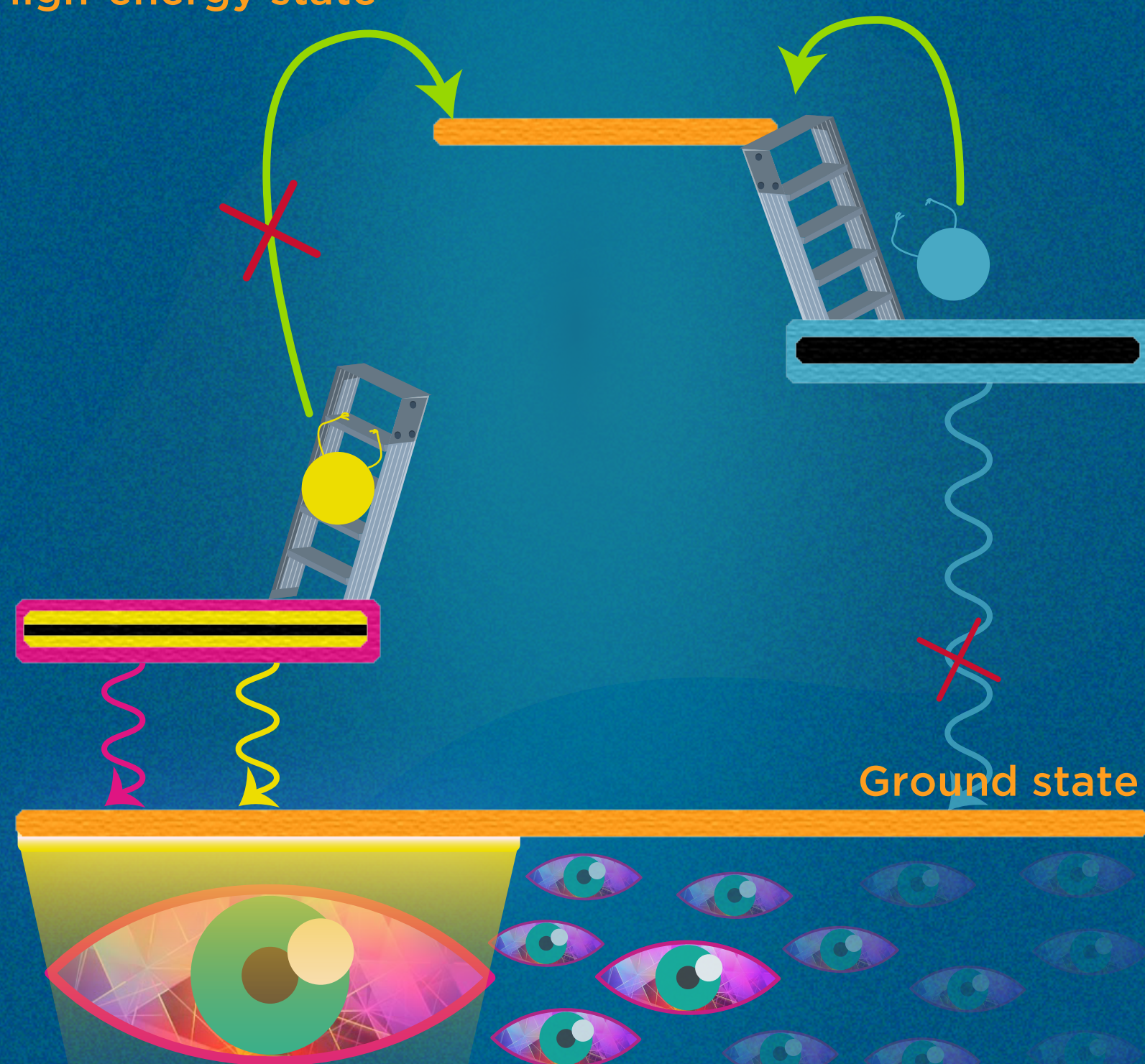


GO-LEDs! Mixed carbene cyclometalated iridium complex for smarter OLEDs

The high photoluminescence and color tunability of cyclometalated iridium have facilitated its commercial success in organic light-emitting diodes (OLEDs).

High-energy state

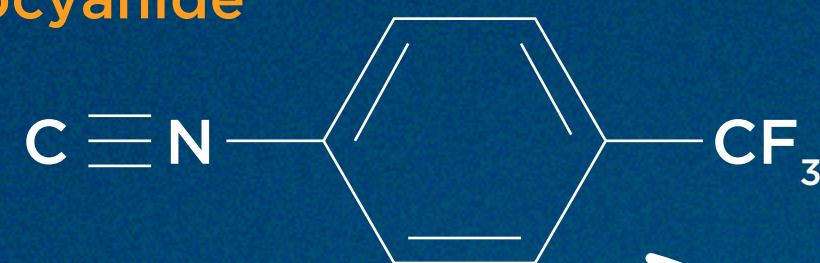
Thermal activation



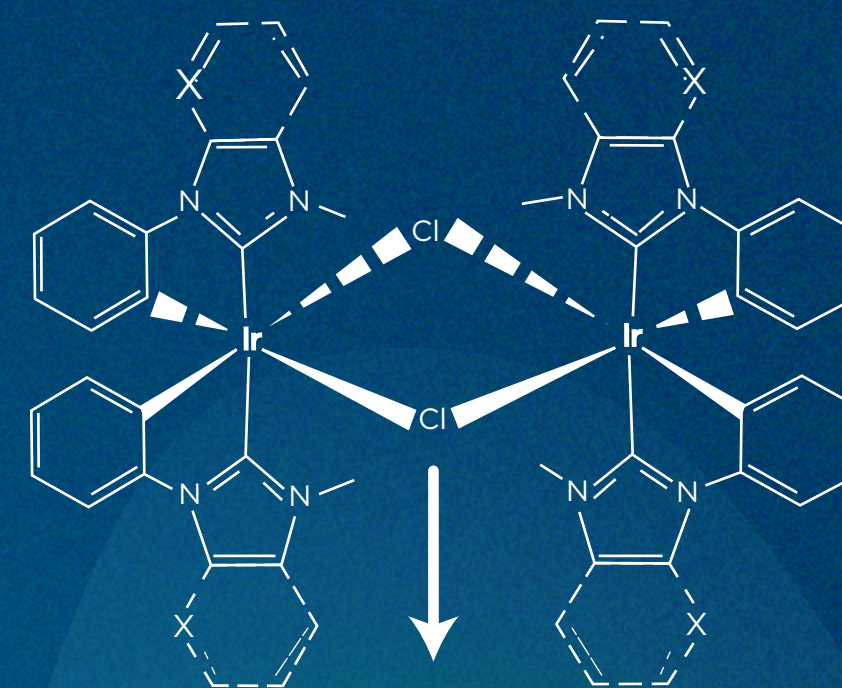
Because the energy of the blue-emitting state is higher, it easily transitions to a non-radiative higher-energy state, thereby resulting in a lack of pure blue emission.

Heteroleptic tris-cyclometalated iridium complexes with mixed carbene

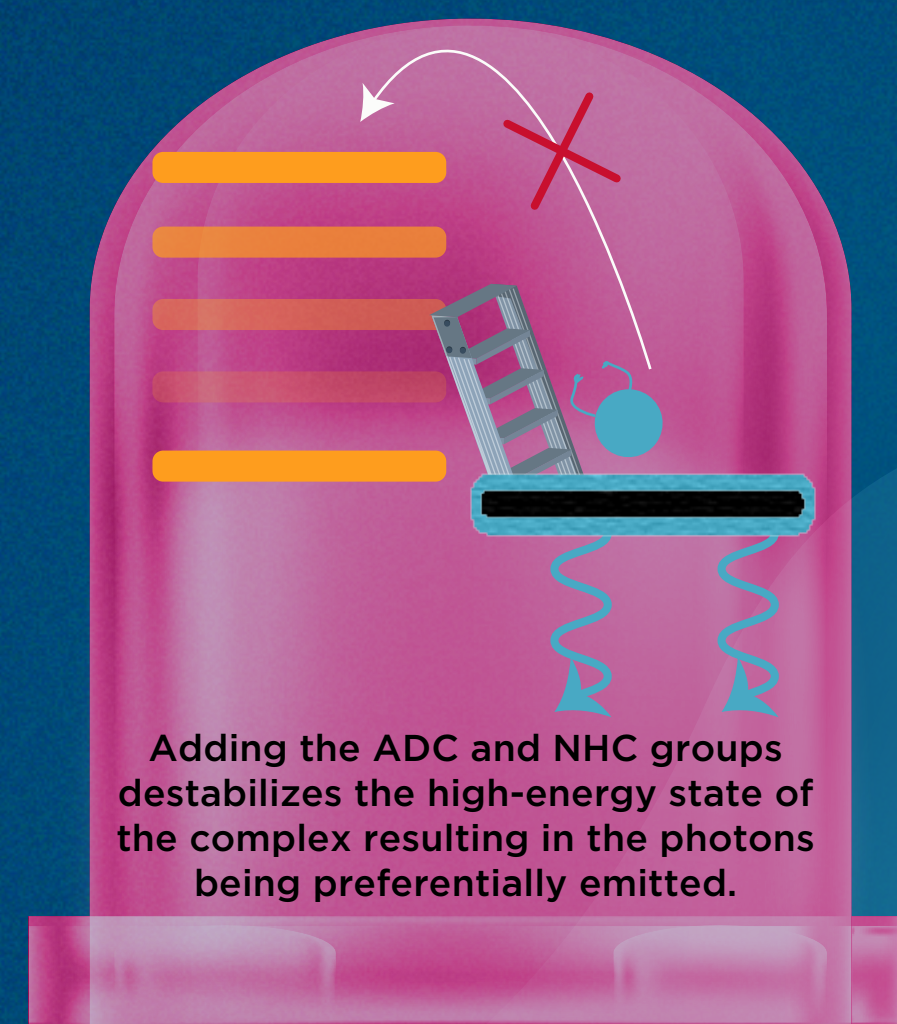
4-trifluoromethylphenyl isocyanide



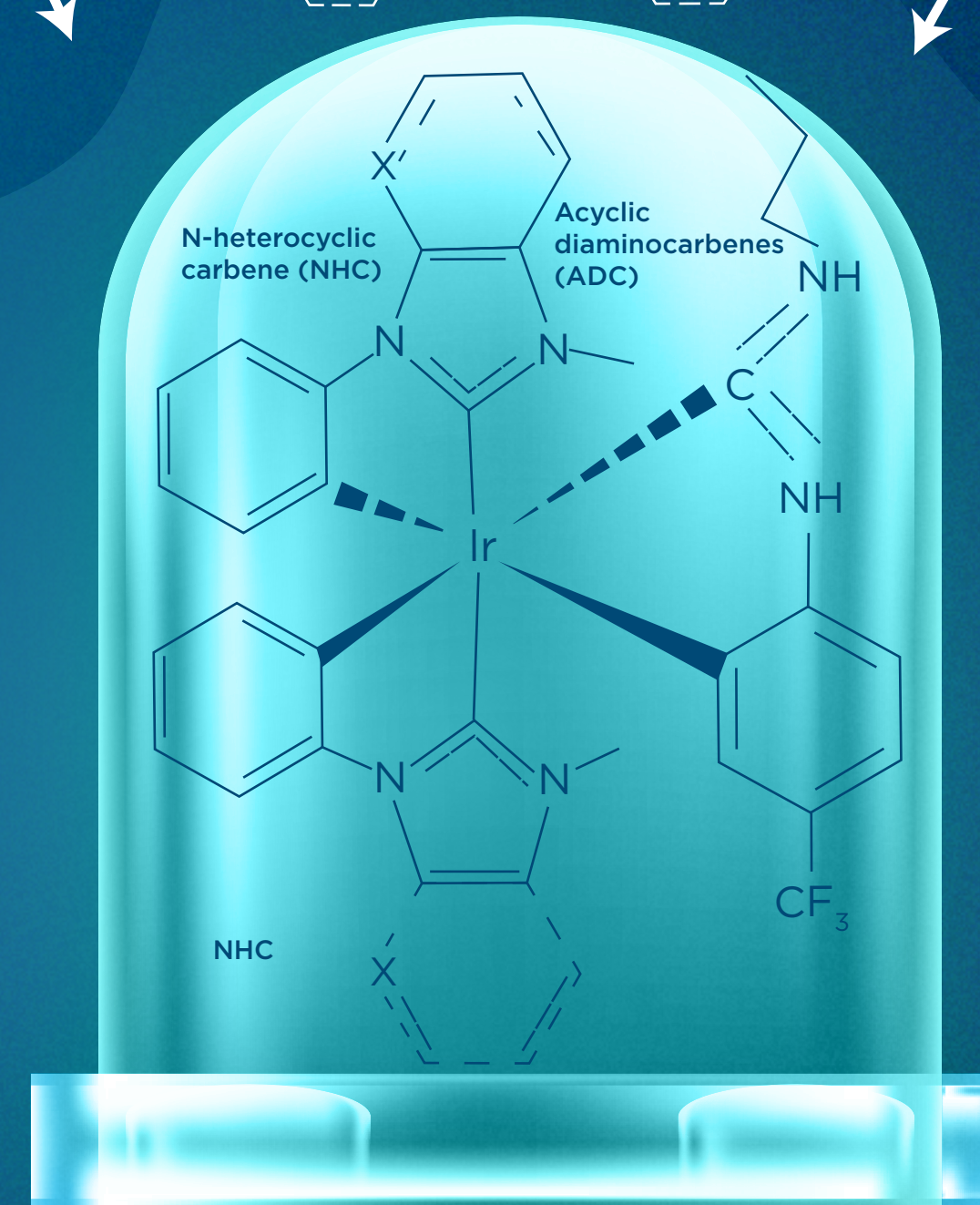
Precursor iridium complex



Excess propylamine



Adding the ADC and NHC groups destabilizes the high-energy state of the complex resulting in the photons being preferentially emitted.



How does it improve OLEDs?

- Rich blue colour
- Matches industry standards
- Efficient photoluminescence
- High stability

The ligand-substituted iridium complex shows promising photoluminescence attributes, which make it an excellent candidate for OLEDs.

Chemical
Science

PICK
OF THE
WEEK

Mixed-Carbene Cyclometalated Iridium Complexes
with Saturated Blue Luminescence
Teets *et al.* (2019) | DOI: 10.1039/C9SC01386E

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