



Showcasing the first publication from Dr. Palas Roy's research laboratory, Department of Chemistry, Indian Institute of Technology Bhubaneswar, Odisha, India.

Hydrogen-bonding environment suppresses thermally activated delayed fluorescence

Thermally activated delayed fluorescence (TADF) emitters power modern OLED displays, yet their brightness is extremely sensitive to their microscopic surroundings. We show that protic hydrogens directly interact with the photoexcited TADF emitter, distorting it out of its light-producing geometry and silently draining its emission. Strikingly, this quenching effect is universal across a range of TADF molecules, underscoring the generality of the phenomenon. Our findings reveal that precise control of local hydrogen-bonding environments is essential for achieving brighter, ultra-efficient next-generation OLED technologies.

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See Palas Roy *et al.*,
Chem. Sci., 2026, **17**, 187.