

# Profound near-infrared luminescence of vanadyl phthalocyanine induced by charging at a molecular level

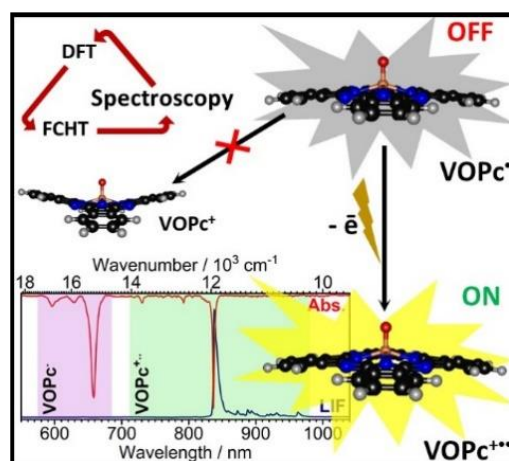
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Probing electrofluorochromism (EFC) at the molecular level remains a challenging task. The strongly charge state-dependent photoluminescence of vanadyl phthalocyanine has been studied and very recently been published.<sup>1</sup> We reported vibrationally-resolved absorption and laser-induced fluorescence (LIF) spectra of both the mass-selected neutral molecule (VOPc<sup>•</sup>, a stable radical) and its cation produced upon electron impact ionization (EI) isolated in solid Ne at 5 K. Ionization of the essentially non-emissive VOPc<sup>•</sup> forms a high-spin diradical cation (VOPc<sup>••+</sup>) which shows profound photoluminescence (PL) in the NIR range. This unique phenomenon is of potential interest towards NIR-emitting modern optoelectronic devices.



<sup>1</sup> Debnath, S.; Haupa, K. A.; Lebedkin, S.; Strelnikov, D.; Kappes, M. M. Triggering near-infrared luminescence of vanadyl phthalocyanine by charging. *Angew. Chem. Int. Ed.* **2022**, doi: 10.1002/anie.202201577.