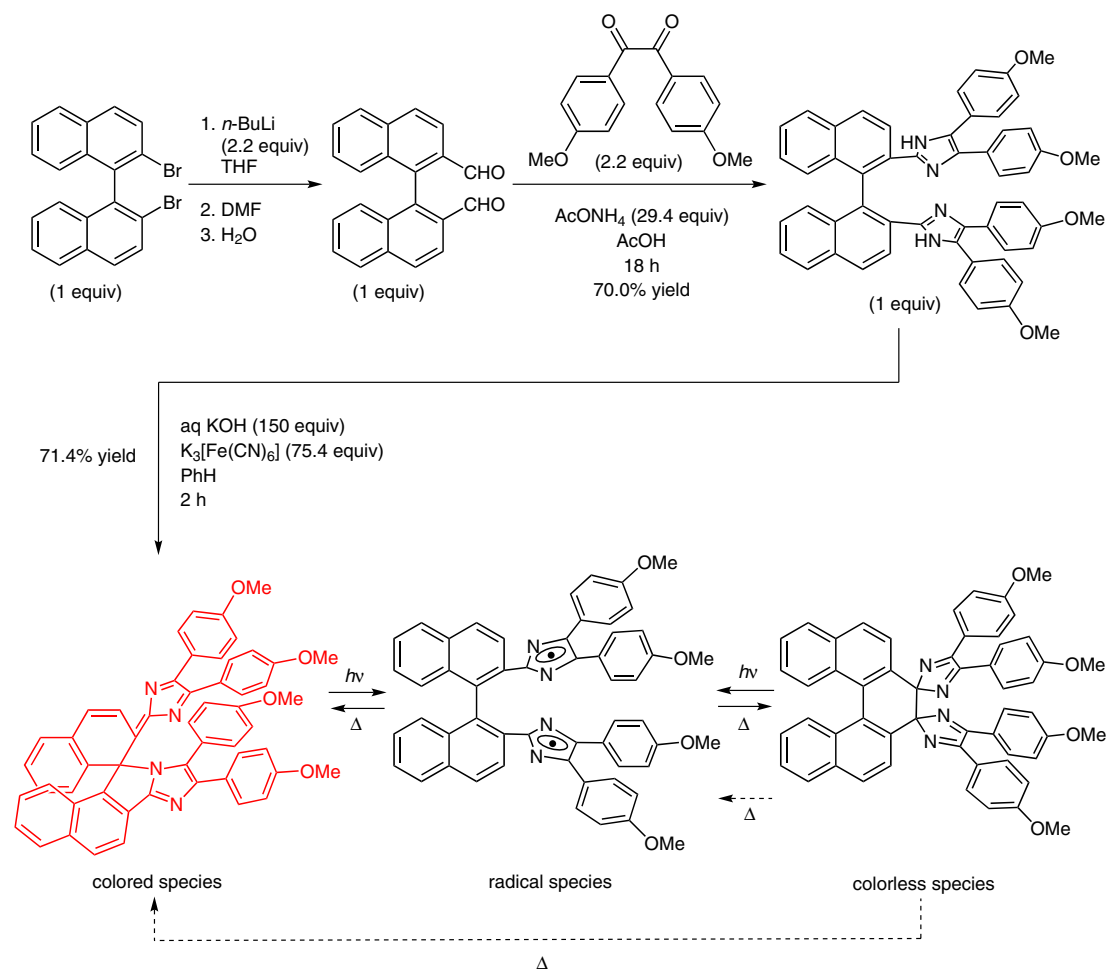


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Unusual Negative Photochromism via a Short-Lived Imidazolyl Radical of 1,1'-Binaphthyl-Bridged Imidazole Dimer
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Negative Photochromism of 1,1'-Binaphthyl-Bridged Imidazole Dimer



Significance: The authors report the synthesis of a 1,1'-binaphthyl-bridged imidazole dimer that exhibits unusual negative photochromism. A stable colored species photochemically isomerizes to a metastable colorless species upon exposure to visible light via a short-lived radical species and thermally returns to the original colored species by a rapid radical coupling reaction.

Comment: Both the colored and colorless species undergo photoinduced homolytic bond cleavage of the C–N bond between the imidazole ring and 1,1'-binaphthyl moiety and the C–C bond between the imidazole rings, respectively, which generates the short-lived radical with a half-life of 9.4 μ s at 298 K (24.85 °C) estimated by nanosecond laser flash photolysis.

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