

Supporting Information

Circularly polarized Room-Temperature Phosphorescence enhanced by dynamic cross-linked networks fixation

Experimental Section

Materials and instruments: All reagents were purchased from Energy Chemical, Pepto-Bismol Biochemical or Macklin Biochemical Co., Ltd depending on the supply availability and used without further purification. ^1H NMR spectra was recorded on a AVANCE III 500 BRUKER instrument. High-resolution mass spectra were measured by America Thermo Scientific Q Exactive Focus. Fluorescence spectra were measured using a F-280 fluorescence spectrophotometer in darkness and under ambient conditions. Phosphorescence spectra were measured by a Hitachi F-4600 fluorescence spectrophotometer in the dark and under ambient conditions. Phosphorescence lifetime, fluorescence quantum yield and phosphorescence quantum yield were measured by the Edinburgh Instruments FLS-980 or Edinburgh Instruments FLS-1000 photoluminescence spectrometer in darkness and under ambient conditions. Differential scanning calorimetry curves were obtained by TA Instruments DSC25 in an argon atmosphere. Photos were taken by Canon 6D2.

Computational methods

The DFT and TDDFT calculations were performed using Gaussian16₁ at the PBE0₂/6-311g(d,p)₃ level with the D3(BJ) empirical dispersion correction₄.

Characterizations

BAD: ^1H NMR (500 MHz, Chloroform-*d*) δ 8.75 (s, 2H), 8.11 (s, 2H), 7.94 (s, 2H), 7.71 (s, 2H), 7.47 (s, 2H), 7.32 (s, 2H), 7.09 (s, 2H), 5.03 (s, 2H), 1.29 (d, $J = 11.0$ Hz, 12H).

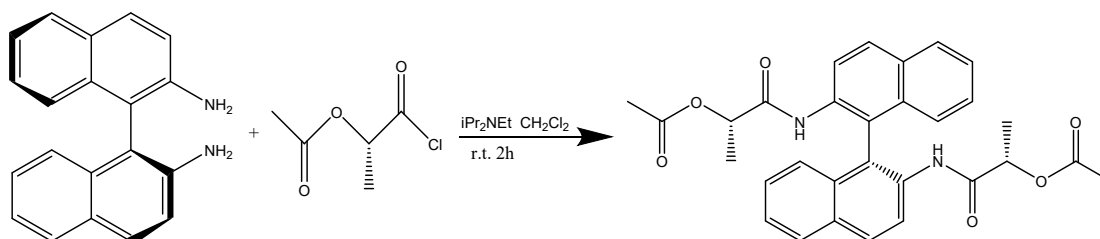


Figure S1 Synthesis step of S/SBAD

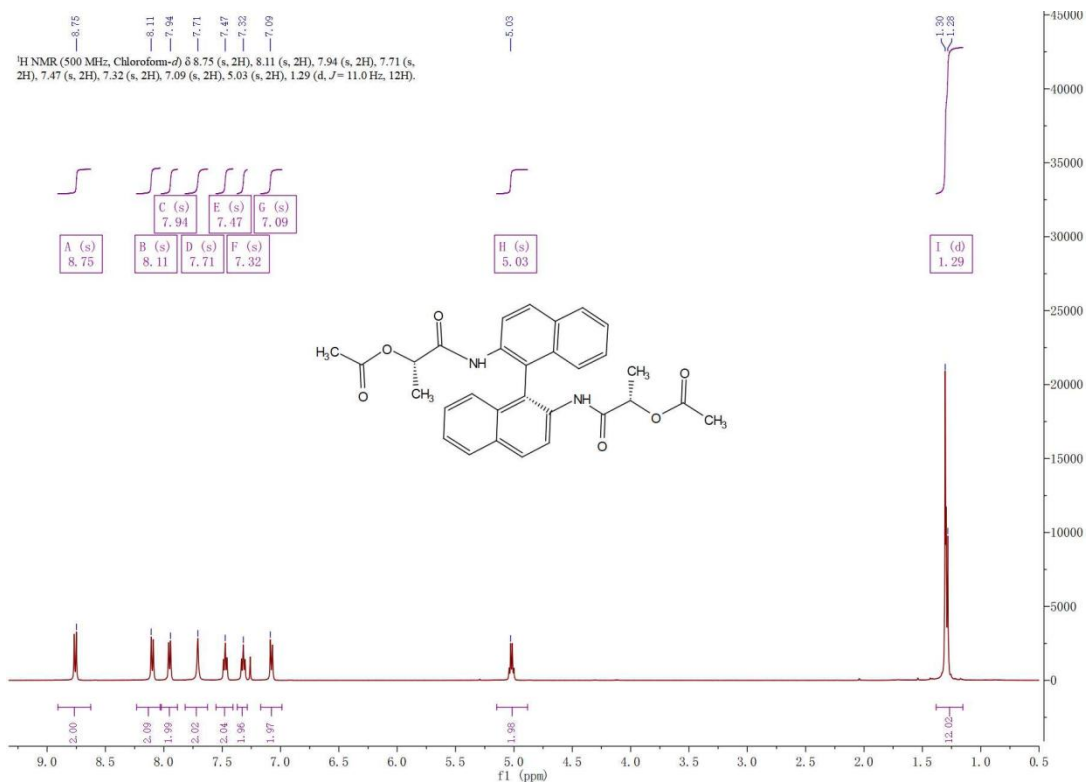


Figure S2 ¹H-NMR spectrum of S/SBAD in Trichloromethane-d₆

2308061467-21 #16-33 RT: 0.09-0.17 AV: 9 SB: 60 0.26-0.90 NL: 1.82E9
T: FTMS + p ESI Full ms [50.0000-750.0000]

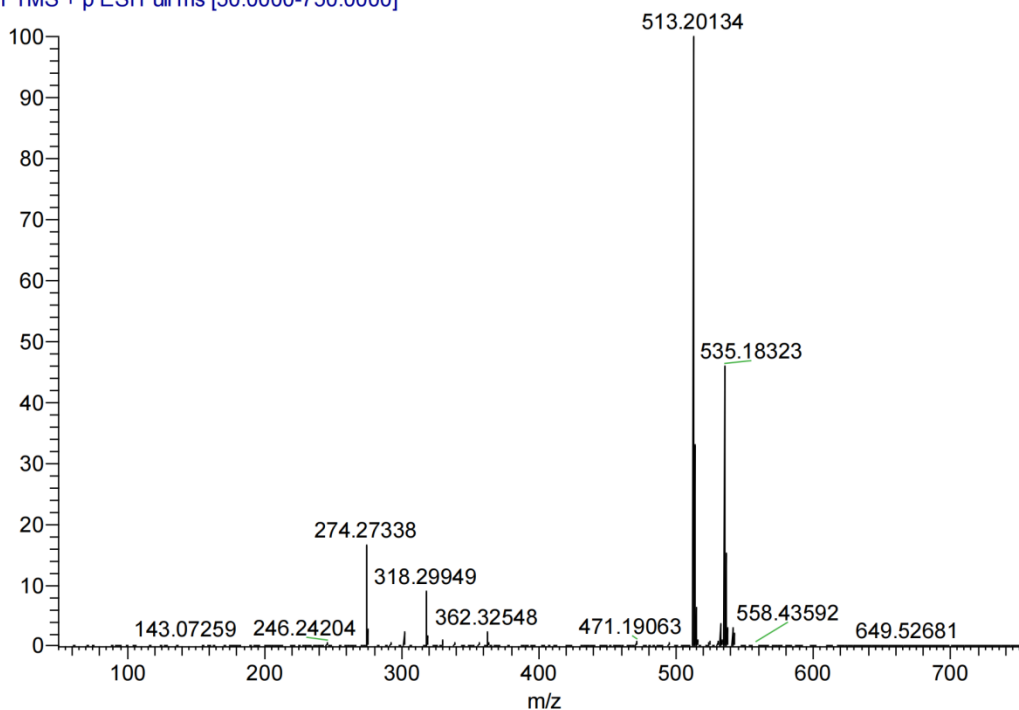
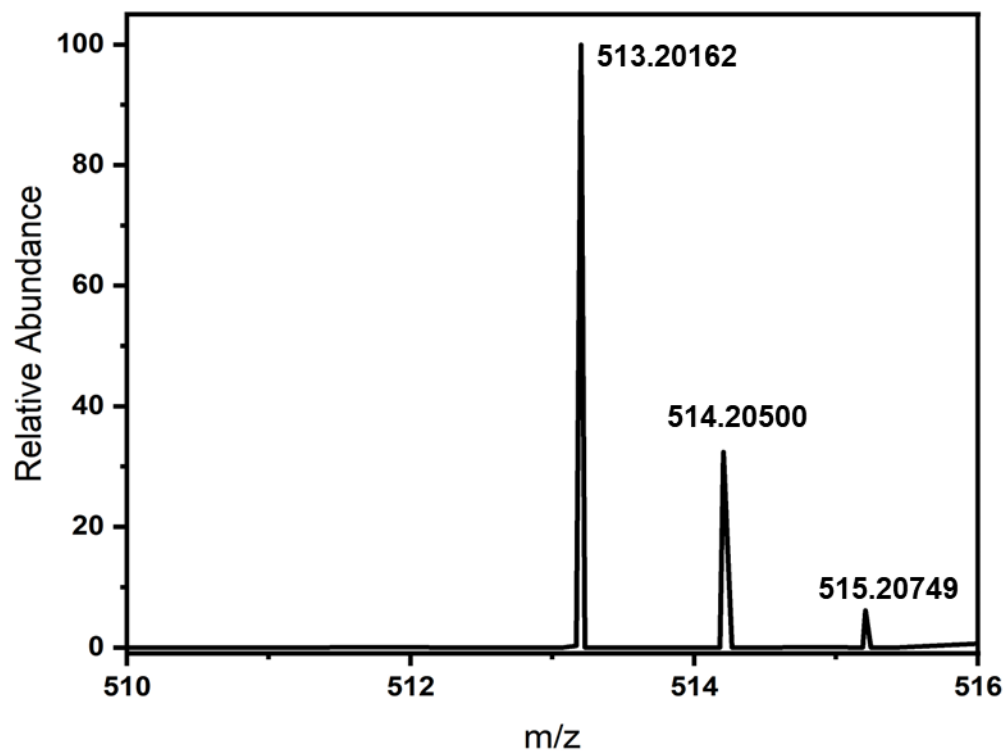
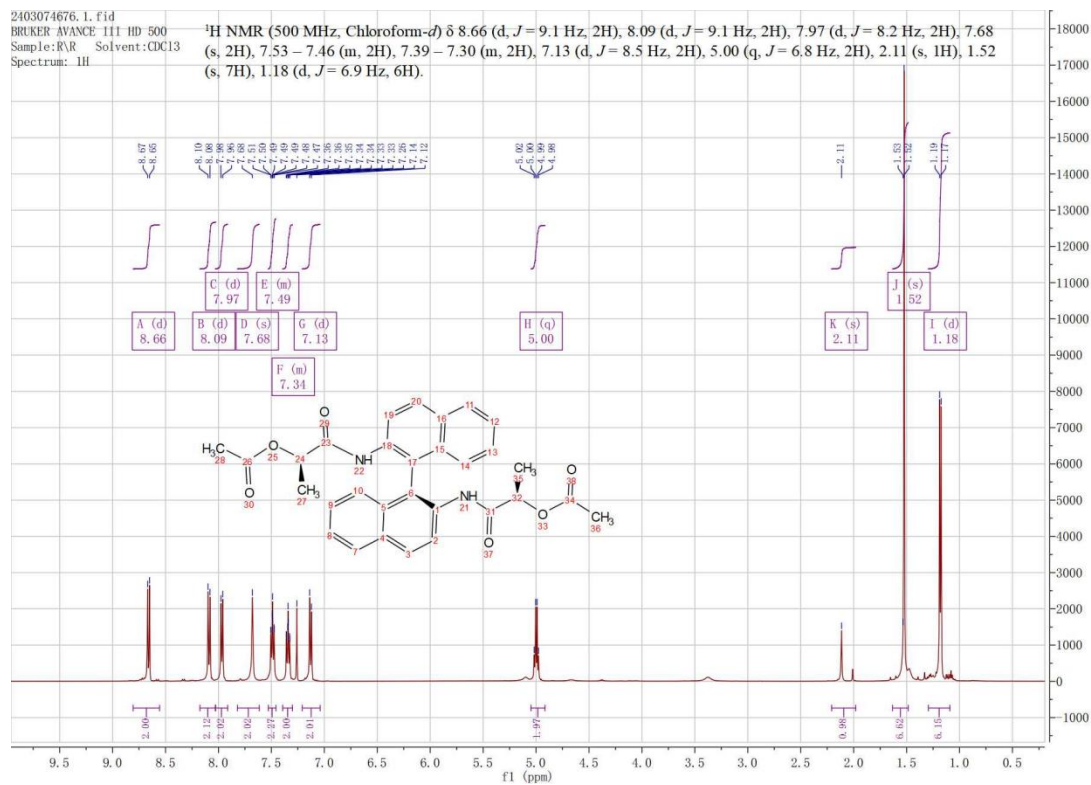


Figure S3 HRMS-MALDI of S/SBAD



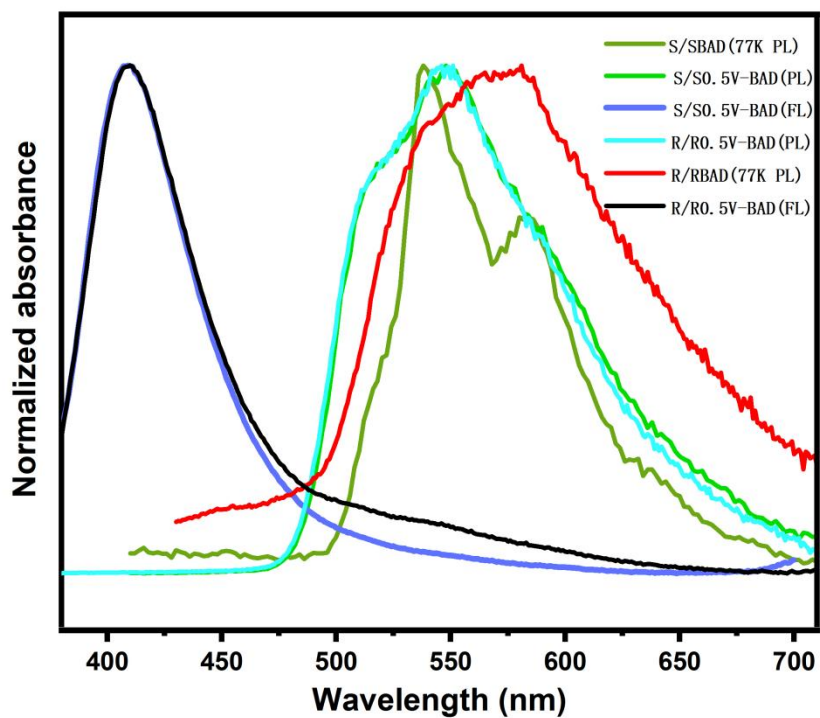


Figure S6 luminescent performance of S/SBAD and R/RBAD for comparison

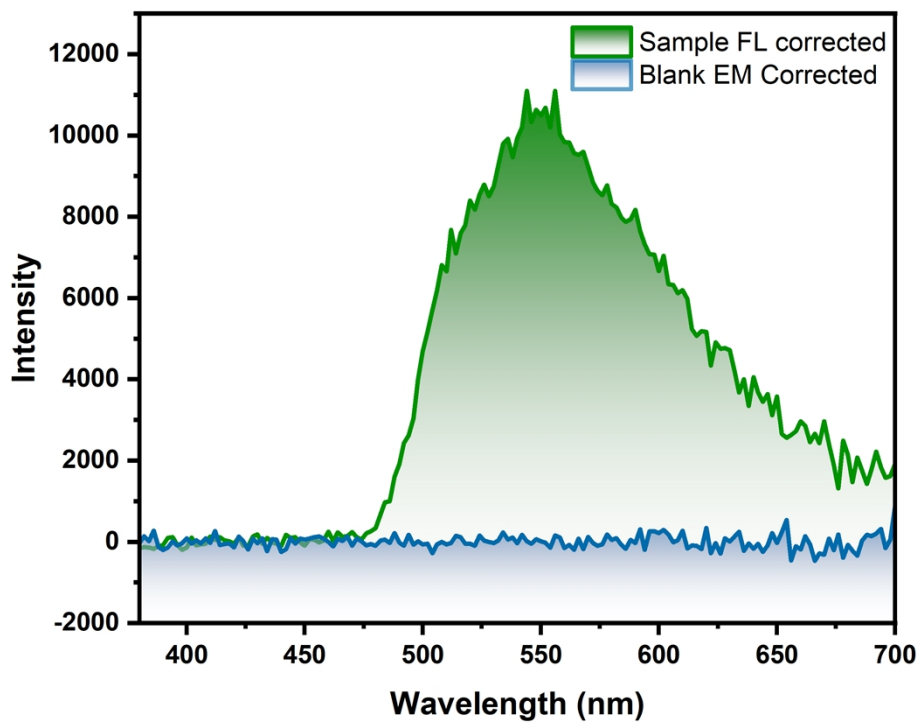


Figure S7 Emission and Fluorescence figure

Table S1 Quantum yield data (Excitation Wavelength 350.04~380 nm, Emission Wavelength 380~700 nm)

Excitation Params (nm)	Emission Params (nm)	Quantum Yield(%)	Chromaticit y X	Chromaticit y Y	Chromaticit y u'	Chromaticit y v'
350.04	380	9.69669	0.40028	0.55875	0.17981	0.56475

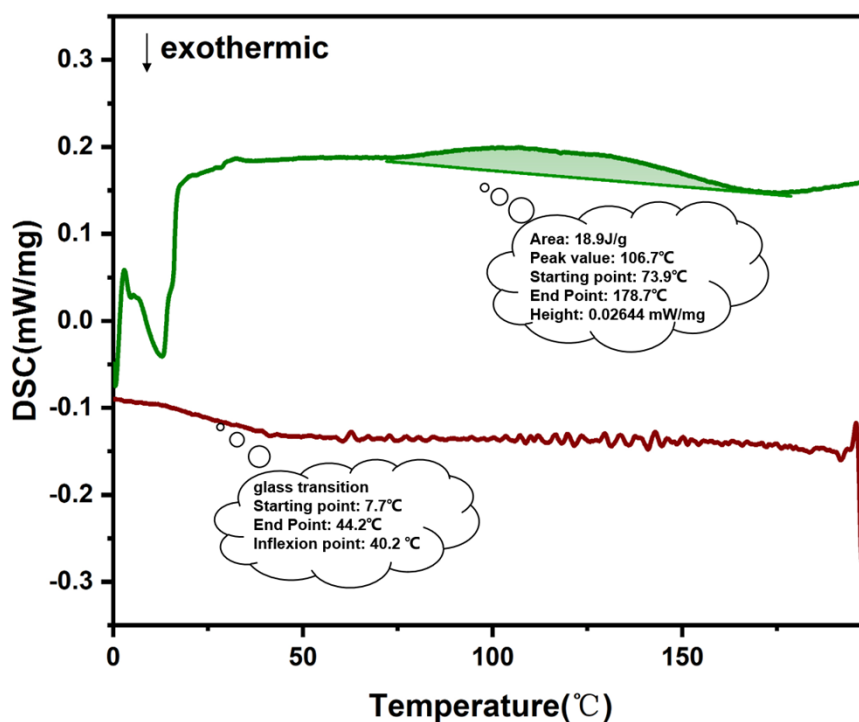


Figure S8 DSC of S/S0.5V-BAD