Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Lithium-coordinating ionic conductor for solid-state dye-sensitized solar cells

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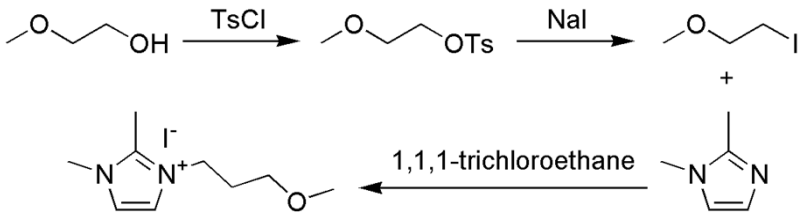

Scheme S1. Synthetic Route of DOII

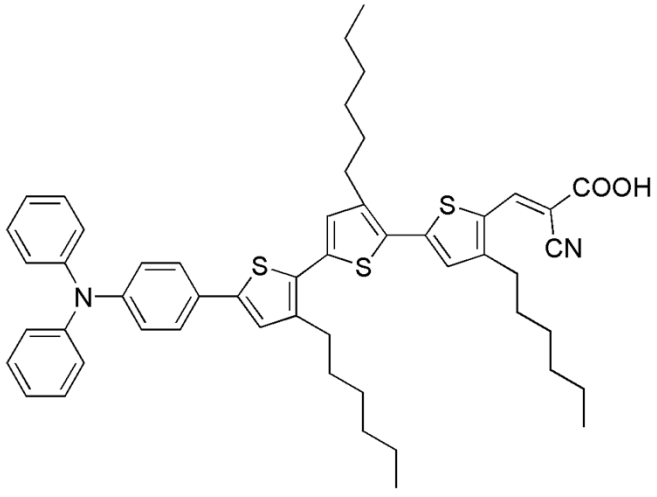

Figure S1. Chemical structure of the metal-free organic dye (FNE29) used in this work.

Table S1. Crystallographic data of DOII

Formula	$C_8H_{15}IN_2O$
M	282.12
T	293(2) K
Cryst syst	Monoclinic
Space group	P2(1)/n
a (Å) b (Å) c (Å) Alpha (deg) Beta (deg) Gamma (deg)	8.701(3) 10.496(4) 12.077(5) 90 91.900(5) 90
V ($Å^3$)	1102.4(7)
Z	4
Density (mg m^{-3})	1.700
Absorption coefficient (mm^{-1})	2.868
Theta range (deg)	2.57 to 26.01
Reflections collected	4769
Independent reflns	2160 [R(int) = 0.0368]
GOF on F^2	1.018
Final R1, wR2 [I>2sigma(I)]	0.0344, 0.0831

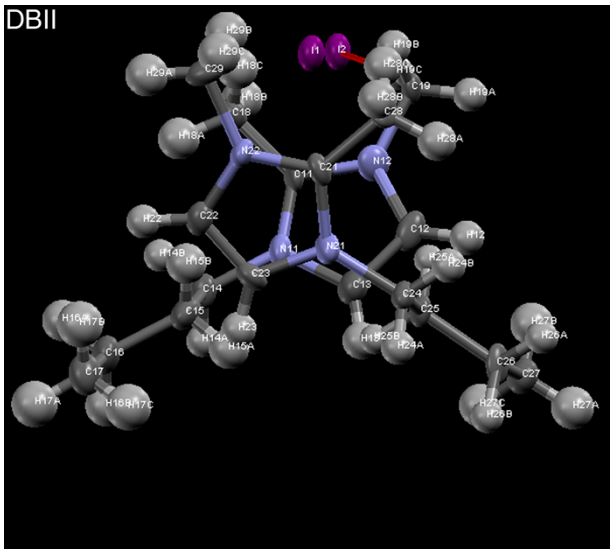

Figure S2. Single crystal structure of DBII

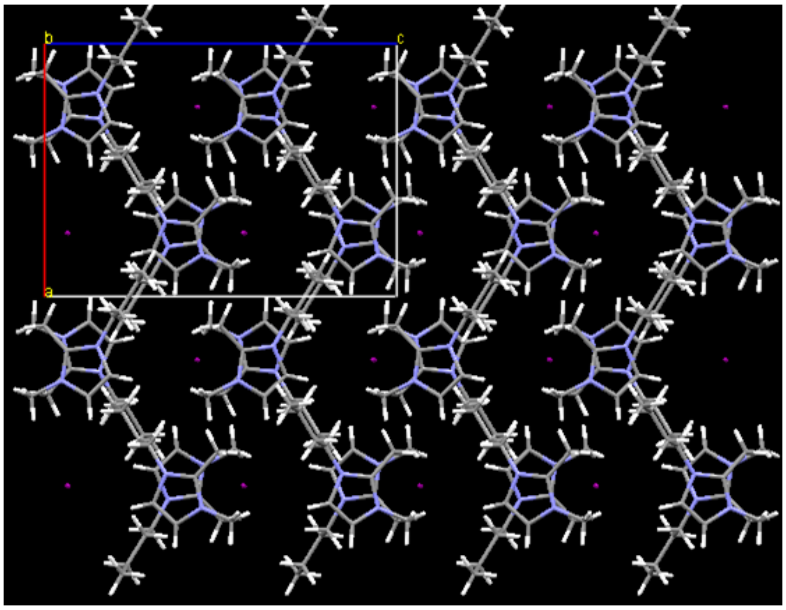

Figure S3. Packing structure of DBII viewed along the *b* axis.

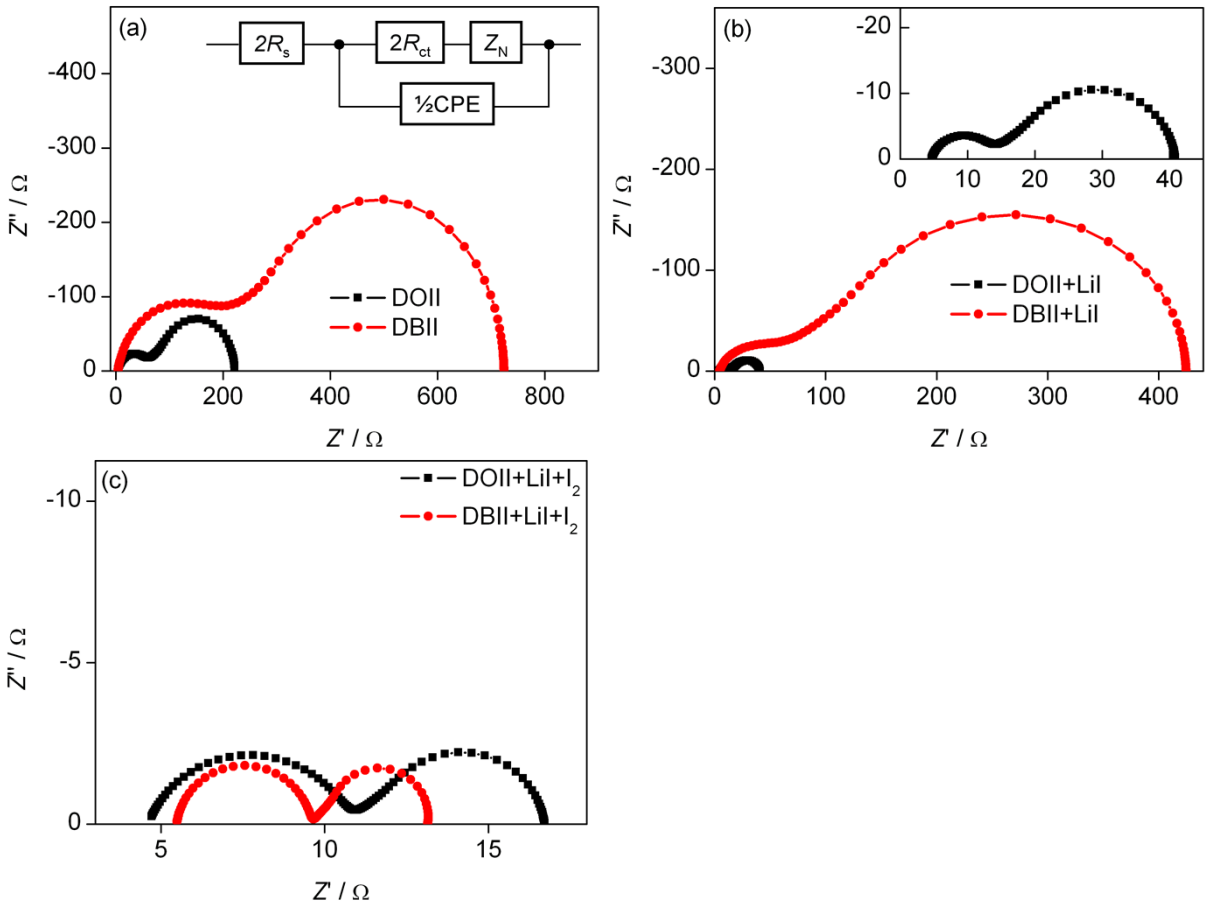

Figure S4. EIS plots for pure ionic conductors (a), mixtures doped with LiI (b), and mixtures doped with LiI and I_2 (c). Inset in (a) is the equivalent circuit diagram for fitting the impedance spectra. The in set in (b) is the magnified impedance spectrum of DOII + LiI. The molar ratio of DOII or DBII and LiI is 2/1; the molar ratio of DOII or DBII, LiI and I_2 is 2/1/0.2.