



Supporting Information

for

Charge carrier transport in perylene-based and pyrene-based columnar liquid crystals

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Additional data and information

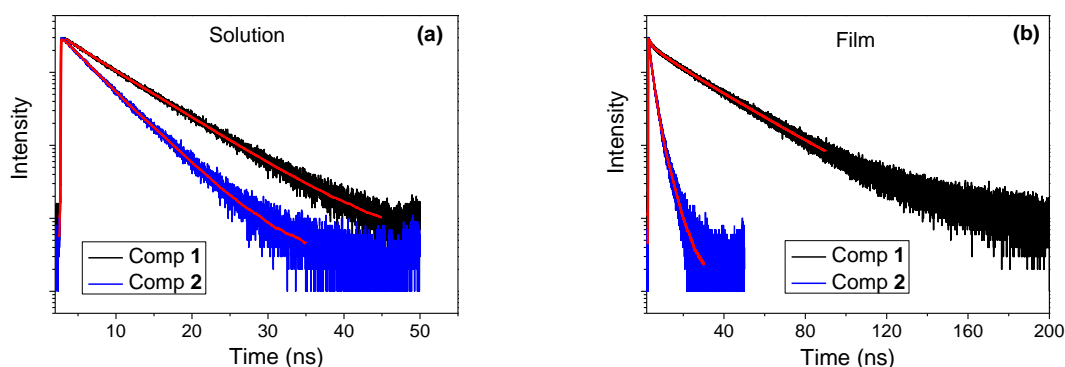
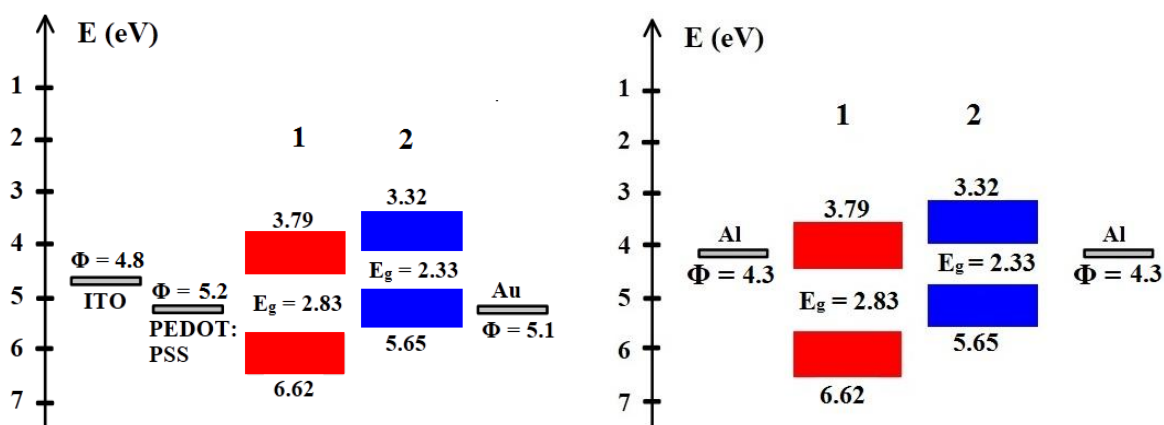


Figure S1: Fluorescence decay curves of compounds **1** and **2** in solution (a) and film (b). The red lines indicate the exponential fittings.



Scheme S1: Hole-only (left) and electron-only (right) device structures for compounds **1** and **2**.

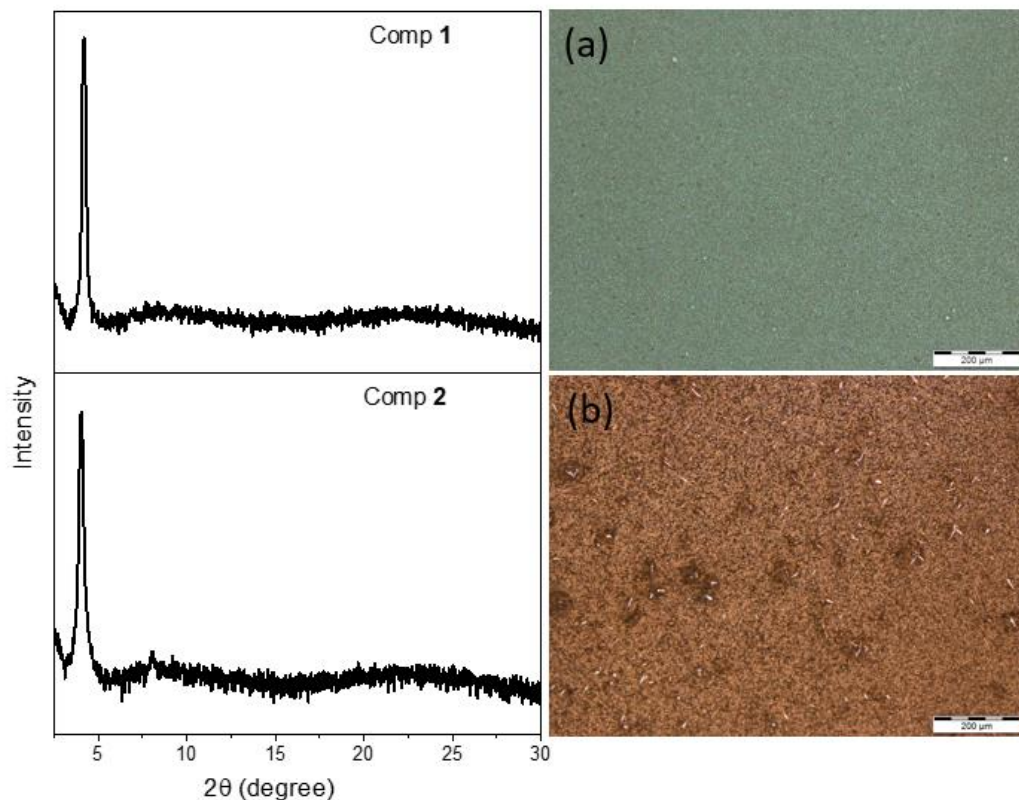


Figure S2: XRD and polarized optical microscopy of spin-coated films of **1** (a) and **2** (b).

Table S1. Calculated Cartesian coordinates for **1-iso**.

C	-3.58315748550623	0.96426507758844	-0.01127730929482
C	-4.60543668588654	-0.07658921177600	0.10459544787442
C	-4.19520735762568	-1.43090073279635	0.29648552614612
C	-2.20622002019265	0.59407939581935	0.06891553657631
C	-1.81154517881474	-0.76771798322179	0.26363446275810
C	-2.81105788254334	-1.78485469371254	0.37823174622915
C	-3.89851548441123	2.32172277510463	-0.20001822789941
C	-1.19792538007709	1.59549675205106	-0.04638374144486
C	-5.17830359135413	-2.45727024003410	0.40993481159026
C	-0.42183343985661	-1.09477437856802	0.34076289541672
C	-2.44404144030265	-3.15265308827426	0.57291441270607
C	0.56296799758017	-0.06778456843243	0.22063311672111

C	0.18488919038681	1.23800598750285	0.03158679647061
C	-1.55717584952266	2.94026590352043	-0.23782254310882
C	-0.09538818837993	-2.45720142839151	0.53594109644832
C	-1.06108553332103	-3.43901383909737	0.64661850015716
C	1.25247090112685	-3.10756495937041	0.65932592346298
C	-0.36999711844236	-4.75457723777505	0.84421314186689
C	-4.78064730553173	-3.81765711472178	0.60309979079945
C	-3.45321688754902	-4.15656105877964	0.68284725101825
C	-6.54437928511514	-2.13822026505233	0.33283918210160
C	-6.93582856122438	-0.81079079249351	0.14569708978196
C	-5.98271895920313	0.19889033220405	0.03414761062729
C	-7.58777492573148	-3.19160149178036	0.44742599950999
H	-8.00261579823737	-0.58888736953113	0.08976716029239
C	-2.90633461500727	3.29294745581715	-0.31162872292088
H	1.62107479815667	-0.32399371393412	0.27822051024047
C	1.24396243201482	2.28216444441826	-0.09407282352955
C	-0.52369616444634	4.00159948512787	-0.36616288848461
H	-3.15903939410906	4.34407218017607	-0.45894645000440
H	-4.94000261700419	2.63573019253765	-0.26196334767409
H	-3.16697766534542	-5.19820490257000	0.83039785918289
C	-5.80584734493778	-4.89573655020675	0.72182140342239
H	-6.32710991062499	1.22234037434599	-0.11106941834161
N	1.00347619883482	-4.47193750211162	0.84174152212309
C	2.03087304275917	-5.50957109517197	1.00974506114530
C	2.84524531481172	-5.26914498106491	2.28301551891551
H	3.42280136268393	-4.33623454460999	2.20901969439484
H	3.54748817166033	-6.10236548923569	2.44018606820259

H	2.18601850459641	-5.20732750768344	3.16273689386306
C	2.90043228727542	-5.62575112988325	-0.24429265773448
H	1.44817008820072	-6.43569049393860	1.12743223976622
H	3.47608627629919	-4.70318909499789	-0.40871727635085
H	2.28022161249437	-5.81858647147334	-1.13330032680889
H	3.60755725763769	-6.46213105507573	-0.13284169901740
N	-7.15012047146781	-4.51480573209163	0.63482755285958
C	-8.20448015779352	-5.56314017497984	0.74867303265785
H	-9.13425120951941	-4.99222251566792	0.64805014891430
C	-8.13475385329284	-6.56242389241093	-0.40760979218566
C	-8.19964807497523	-6.22100435248112	2.13006302290541
H	-8.25753200781521	-5.45954584276538	2.92369132896984
H	-7.29917039355295	-6.82943941639514	2.28652487157347
H	-9.08355221984742	-6.87149007888240	2.22340156667634
H	-7.23150432265796	-7.18418875679474	-0.35311875574253
H	-8.14809478117333	-6.03772616323928	-1.37598852085317
H	-9.01693482356829	-7.22080454771250	-0.37010359457899
N	0.82250948039662	3.60294602033841	-0.28995267132722
C	1.85015723043885	4.67397000229804	-0.43363030624315
H	1.24793348149778	5.57848680988858	-0.57381630158003
C	2.70209160105264	4.47297506295904	-1.68836208017801
C	2.67116836560899	4.84592084811549	0.84555998571136
H	2.01092715166563	4.99920447501612	1.71368859390041
H	3.30963227133224	5.73803253469100	0.74735327523244
H	3.31278287027587	3.97553206271376	1.03576865087696
H	2.06287890286710	4.36023471666210	-2.57824495680195
H	3.34994463357959	3.59073994612076	-1.60236961718896

H	3.33597880777662	5.36072320103725	-1.84052208029770
O	-0.83504073028541	5.16716347930077	-0.53232738800337
O	2.42486676439837	1.99532207729998	-0.03025808133656
O	-8.77186479271315	-2.91508387170165	0.38108925616614
O	-5.48453698802141	-6.05785032900515	0.88657473467176
O	-0.85649464911119	-5.85382630489053	0.98123685720176
O	2.34592254868998	-2.58798462787097	0.61498443080284

Table S2. Calculated Cartesian coordinates for **2-iso**.

C	-3.53755610986468	0.78161710826123	-0.22987129849116
C	-4.43610659850284	-0.21597944474441	-0.02579730512958
C	-4.00717818139385	-1.52721581129557	0.39114307623448
C	-2.12643464633481	0.55973386883416	-0.03804945671951
C	-1.65975256157212	-0.74485913729950	0.33593015529642
C	-2.60701663820962	-1.79566715528641	0.55444213536261
H	-3.86827370400224	1.77911577520191	-0.53035102846718
C	-1.21538937572966	1.59843431131864	-0.16217040936663
H	-5.50672661674333	-0.03975717379631	-0.15760760313907
C	-4.92871802258459	-2.52128143719210	0.68470074920324
C	-0.26492122755257	-0.96762027923621	0.51640231327260
C	-2.18153485486597	-3.09224194860562	0.96262797947675
C	0.67813618041310	0.09141344516198	0.22971246019800
C	0.17541474747182	1.41741792103197	-0.00991234958593
H	-1.60895877835472	2.58522838292626	-0.40071921898498
C	1.07426587322810	2.56637468657288	-0.09393472010031
C	0.10854255263643	-2.22752079156888	1.06747521144613

C	2.10686945886084	-0.06421198120367	0.15792482609846
C	-0.79925372957413	-3.23300905113284	1.28015960257450
H	1.14063075854388	-2.40957212836650	1.34093436288960
H	-0.43841559470119	-4.15890386929238	1.71037103572853
C	-4.55078285031676	-3.82251567013223	1.07699201261581
C	-3.15186582214567	-4.15468783078676	1.12002852089823
C	-2.84039672935189	-5.54619443251427	1.31859086847151
C	2.48744201355404	2.37177559257334	-0.02737400169852
C	2.94705804636865	1.02595241429458	0.04810476676544
C	2.98099653064244	-1.29279816020592	-0.00965723581952
C	4.36452918647845	0.55507119436425	-0.05472482259610
H	-5.98413538415273	-2.27063202606914	0.59143544493290
C	-5.57573711971298	-4.80044190521135	1.43479884316460
C	0.60298387465839	3.89717015461274	-0.21613585238315
C	3.37079672603488	3.48085229317849	-0.08247130917390
C	-3.82138970039169	-6.46931563798155	1.62325227679480
C	-1.56858280809864	-6.34094622483605	1.08729627716735
C	-5.20208959354512	-6.14275511524870	1.74636869670851
C	-6.18513018288960	-7.09606703197519	2.11835156978682
C	1.47711835582235	4.96931785138501	-0.26549527762034
C	2.87015462275428	4.76310619182026	-0.19910952817513
H	4.44241360695974	3.29101267762547	-0.03523030719223
H	3.55170159678591	5.61613946284626	-0.23848365516226
H	-0.46645104542204	4.09934409829965	-0.25623953143431
H	1.08011125797717	5.98380229095537	-0.35175794301875
C	-3.21038125944811	-7.83240573679842	1.72663245319517
C	-7.51591688480428	-6.73198564608054	2.18666811012811

C	-7.89811225032999	-5.40926914965377	1.88403547505929
C	-6.95122647759497	-4.46935947088451	1.51551253638222
H	-8.94982279234658	-5.11865886187452	1.94492455748925
H	-7.28491746396164	-3.45428338387250	1.30479597363972
H	-5.86186865352098	-8.11197509095571	2.34191740242758
H	-8.27077971842970	-7.46668032066388	2.47663381487338
N	-1.86856380924950	-7.67418326326037	1.39783219457427
N	4.30339811330178	-0.83401056555574	-0.08211889619849
O	-3.74157971964062	-8.88419996151351	2.02088597525039
O	-0.48689949643230	-5.98934391751008	0.67626882291206
O	2.68179607680599	-2.45972777697087	-0.11619391544979
O	5.38268676740150	1.21424883738726	-0.11616303844457
C	-0.88088897652539	-8.75538770291259	1.29133852926866
C	5.44970448977836	-1.73566466528578	-0.25086462300420
C	-0.66895250590982	-9.43641858555401	2.64525967553905
H	0.04425471860745	-8.23542991212862	1.00186422770910
C	-1.26035921052692	-9.73829848359946	0.18119804595801
H	-2.20193131924571	-10.25494808149109	0.41869505678333
H	-0.46863983240914	-10.49442159861121	0.06253831118207
H	-1.37816634662153	-9.21413234553405	-0.77991552755603
H	-0.37886031020084	-8.70036984671532	3.41113621422671
H	0.13580725898359	-10.18384843119411	2.56657598312143
H	-1.58648587699629	-9.94410773215650	2.97616583235659
C	6.41627560000987	-1.61573950198645	0.92973174060319
C	6.12912858162264	-1.51216657376008	-1.60427166406304
H	4.99648742637121	-2.73801101169046	-0.24378642503362
H	6.57029035706242	-0.50623509696933	-1.66079051105699

H	5.40595057476197	-1.62724788120074	-2.42654163968185
H	6.93111702638051	-2.25286089675867	-1.74831818950576
H	6.86436195046135	-0.61235472109584	0.96888777966497
H	7.22479648152640	-2.35629542393104	0.82798204147882
H	5.89585996794228	-1.80576267650014	1.88137334534221