Supplementary:

Planar D-π-A Configured Dimethoxy Vinylbenzene Based Small Organic Molecule for Solution-Processed Bulk Heterojunction Organic Solar Cells

Shabaz Alam ¹, M. Shaheer Akhtar ², Abdullah Abdullah ^{1,3}, Eun-Bi Kim ¹, Hyung-Shik Shin ^{1,4*} and Sadia Ameen ^{4,*}

- ¹ Energy Materials & Surface Science Laboratory, Solar Energy Research Center, School of Chemical Engineering, Jeonbuk National University, Jeonju 54896, Korea; shabaz@jbnu.ac.kr (S.A.); abdullahazmi@jbnu.ac.kr (A.A.); keb821@naver.com (E.-B.K.)
- ² New & Renewable Energy Material Development Center (NewREC), Jeonbuk National University, Korea; shaheerakhtar@jbnu.ac.kr
- ³ Advanced Materials & Devices Laboratory, Department of Bio-Convergence Science, Jeongeup Campus, Jeonbuk National University, Jeonju 56212, Korea
- ⁴ Korea Basic Science Institute (KBSI), 169-148 Gwahak-ro, Yuseong-gu, Daejon 34133, Korea
- * Correspondence: hsshin@jbnu.ac.kr (H.-S.S.); sadiaameen@jbnu.ac.kr (S.A.); Tel: +82-63-270-2438, Fax: +82-63-270-2306

Keywords: Thiophene; planar; Dimethoxyvinylbenzene; chromophore; binding energy; charge separation; exciton



Figure S1. (a) ¹H NMR and (b) ¹³C NMR of 1,3 Indandione (1).



Figure S2. (a) ¹H NMR and **(b)** ¹³C NMR of 2-((5-brmothiophen-yl)-methylene)-1H-indene-1,3 (2H)-dione (2).



Figure S3. (a) ¹H NMR and **(b)** ¹³C NMR of 2-((5-(3,5-dimethoxystyryl)thiophen-2-yl)methylene)-1H-indene-1,3(2H)-dione (DVB-T-ID).



Figure S4. Mass spectra of **(a)** 1,3 Indandione (1) and **(b)** 2-((5-bromothiophen-yl)methylene)-1H-indene-1,3(2H)-dione (2).



Figure S5. (a) Mass spectrum and **(b)** FTIR spectrum of 2-((5-(3,5-dimethoxystyryl)thiophen-2-yl)methylene)-1H-indene-1,3(2H)-dione (DVB-T-ID).