Electronic Supplementary Material (ESI) for Molecular Systems Design & Engineering. This journal is © The Royal Society of Chemistry 2023

## **Supporting Information for**

## Cationic and Radical Polymerization Using a Boron-Thienothiophene-Triphenylamine Based D-π-A Type Photosensitizer Under White LED Irradiation

Ali Suerkan<sup>1</sup>, Recep Isci<sup>1\*</sup>, Turan Ozturk<sup>1,2</sup> and Yusuf Yagci<sup>1\*</sup>

<sup>1</sup>Department of Chemistry, Istanbul Technical University, 34469, Maslak, Istanbul, Turkey <sup>2</sup>TUBITAK UME, Chemistry Group Laboratories, 41470, Gebze, Kocaeli, Turkey

Table of Contents:

Figure S1. A photoreactor capable of providing white LED	.2
Figure S2. Network formation by photopolymerization: TEGDMA, PTEGDMA, BADGE	
and PBADGE respectively 1a, 1b, 2a, and 2b	.2
Figure S3. Purified cross-linked polymers: PBADGE (1a) and PTEGDMA (2a)	3
Figure S4. Photographs of DMB-TT-TPA under UV light in different solvents	.3
Figure S5. GPC Traces of PSty, PIBVE, PMMA and PCHO	4
Figure S6. <sup>1</sup> H-NMR Spectra of the polymers in CDCl3 (500 MHz)	4
Figure S7. CV spectra of the polymers	5
Figure S8. CV calibration	5



Figure S1. A photoreactor capable of providing white LED light.



Figure S2. Network formation by photopolymerization: TEGDMA, PTEGDMA, BADGE and PBADGE respectively 1a, 1b, 2a, and 2b.



Figure S3. Purified cross-linked polymers: PBADGE (1a) and PTEGDMA (2a).



**Figure S4.** Photographs of **DMB-TT-TPA** under UV light in different solvents (from left to right; hexane, toluene, tetrahydrofuran, dichloromethane, acetonitrile and dimethyl sulfoxide,

respectively.)



Figure S5. GPC Traces of PSty, PIBVE, PMMA and PCHO.



Figure S6. <sup>1</sup>H-NMR Spectra of the polymers in CDCl<sub>3</sub> (500 MHz).



Figure S7. CV Spectra of the polymers (using DMB-TT-TPA sensitizer).



Figure S8. Cyclic voltammogram of ferrocene in 0.1 M TBAPF6 acetonitrile electrolyte; Pt working electrode, Pt counter, Ag wire reference, scan rate = 0.1 V s-1)