Supporting Information

Green solvents processed all function layers for efficient perovskite solar cells

Xiaobing Cao^a*, Lei Hao^a, Gengyang Su^a, Xiaoxi Li^a, Tuyu Dong^a, Pengjie Chao^a, Daize Mo^a, Qingguang Zeng^a, Xin He^a*, Jinquan Wei^b*

- School of Applied Physics and Materials, Wuyi University, Jiangmen, Guangdong 529020,
 P.R. China
- 2. State Key Lab of New Ceramics and Fine Processing; Education Ministry Key Laboratory for Advanced Materials Processing Technology; School of Materials Science and Engineering, Tsinghua University, Beijing, China, 100084

*Corresponding Authors. E-mail: caoxb14@tsinghua.org.cn; <u>hexinwyu@126.com</u>; jqwei@tsinghua.edu.cn. Tel: +86-10-62781065.

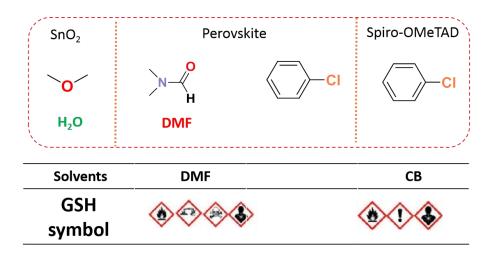


Figure S1 The molecular structure and GHS symbol of solvents used for preparation of various functional layers in PSCs in the traditional solvent engineering approach.

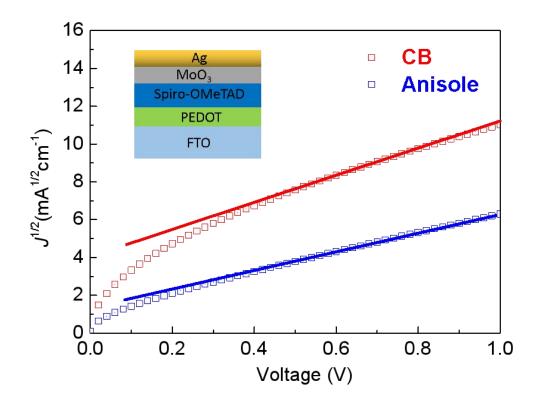


Figure S2 $J^{1/2}$ ~V characteristics for SCLC hole-only mobility. Inset is the device configuration of hole-only device.

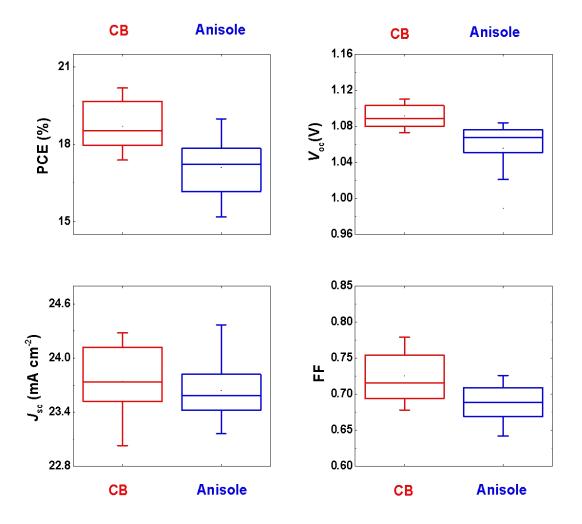


Figure S3 The boxchart of photovoltaic parameters of solar cells prepared from different solvent for preparation of Spiro-OMeTAD films.

Table S1 The fitting results of TRPL spectra.

Samples	τ_1 (ns)	τ_2 (ns)	$A_1(\%)$	A ₂ (%)	τ_{ave} (ns)
FTO/perovskite	48.52	315.86	8.09	91.91	312.29
FTO/perovskite/Spiro-					
OMeTAD (CB)	27.24	176.99	48.29	51.71	158.17
FTO/perovskite/Spiro-					
OMeTAD (Anisole)	38.91	258.37	48.35	51.65	231.25
$\tau_{ave} = (A_1 \tau_1^2 + A_2 \tau_2^2) / (A_1 \tau_1 + A_2 \tau_2)$					