Organic Memory Device Based on Carbazole-Substituted Cellulose

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Supporting Figures

Figure S1: Current-Voltage characteristics of Cz-cell:PBD:FIrpic thin film device.
(Cz-cell : carbazole-substituted cellulose (compound 5), PBD : 2-(4-biphenylyl)-5-phenyl-1,3,4-oxadiazole,
FIrpic : bis[(4,6-difluorophenyl)-pyridinato-N,C2’](picolinate) iridium(III))
The device structure and mixing ratios discussed in the main text are shown in Figure S2.

**Figure S2:** Device structure.

- **Al (80nm)**
- **Ca (30nm)**
- **Cz-Cell:PBD**
- **PEDOT:PSS**
- **ITO**
- **Glass substrate**

**Mixing ratio**
- Cz-Cell:PBD = 1:1
- Cz-Cell:PBD = 2:1
- Cz-Cell:PBD = 3:1

**Al**: aluminum  
**Ca**: calcium  
**Cz-cell**: carbazole-substituted cellulose (compound 5)  
**PBD**: 2-(4-biphenylyl)-5-phenyl-1,3,4-oxadiazole  
**PEDOT:PSS**: poly(3,4-ethylenedioxythiophene)/poly(styrene sulfonic acid)  
**ITO**: indium tin oxide
The Current density-Voltage characteristics of Cz-cell:PBD devices are shown in Figure S3. As the Cz-cell content is increased from 1:1 to 2:1 (w/w), the On/Off ratio shows the higher orders.

**Figure S3:** Current density-Voltage characteristics of Cz-cell:PBD thin film devices.
(Cz-cell: carbazole-substituted cellulose (compound 5), PBD: 2-(4-biphenylyl)-5-phenyl-1,3,4-oxadiazole)
PL spectrum of other cellulose derivative show red-shift and broader peak comparing with Cz-cell (carbazole-substituted cellulose) with carbazole at secondary hydroxyl groups and PVK [Poly(N-vinyl carbazole)]

**Figure S4:** Photoluminescence spectra for thin film of PVK and Cz-cell with carbazole at secondary hydroxyl groups.