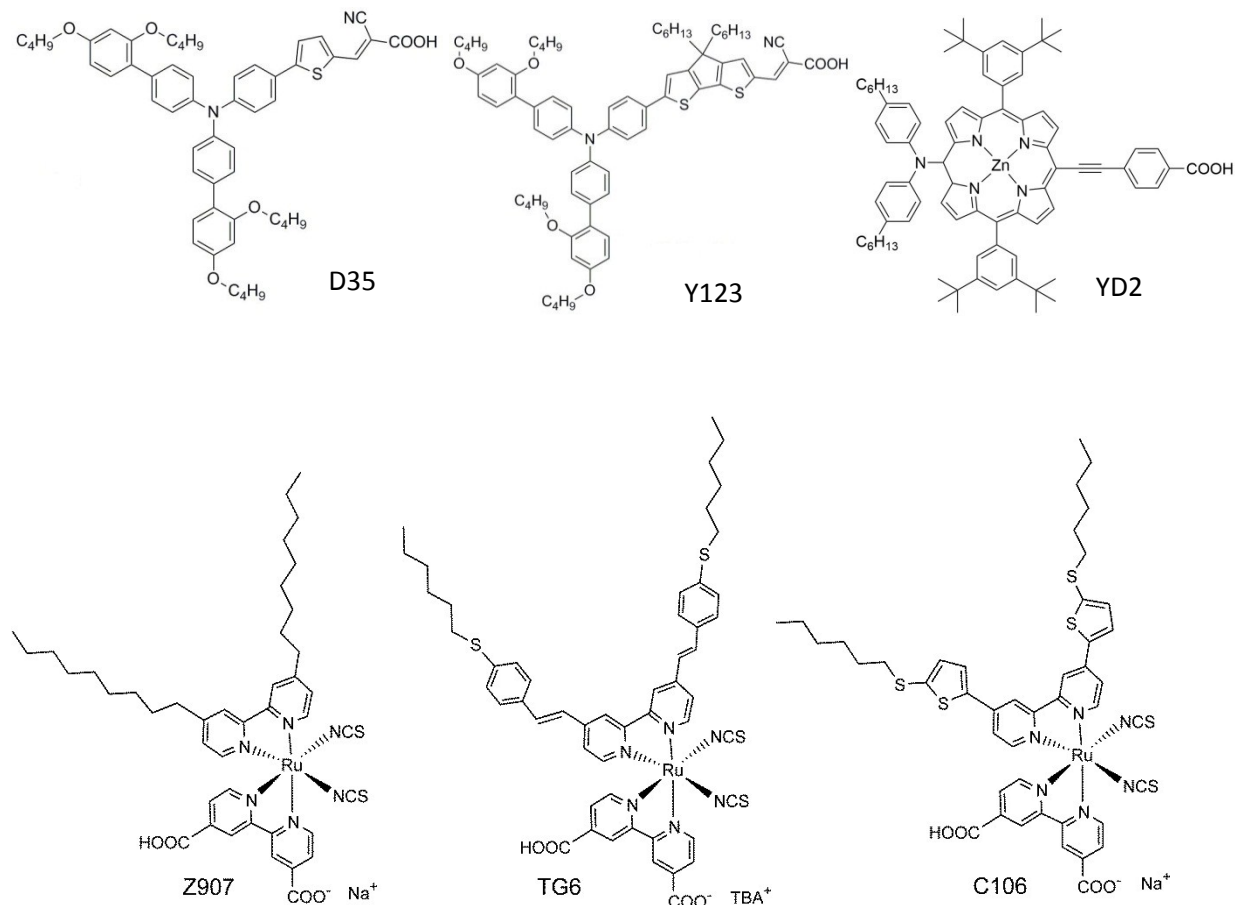
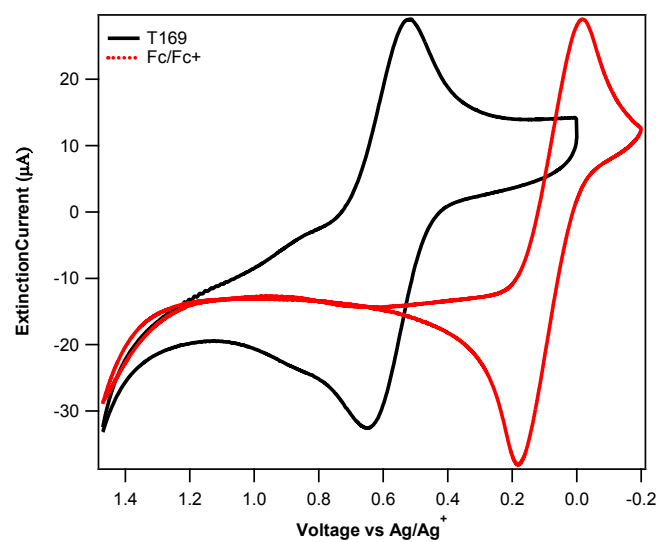


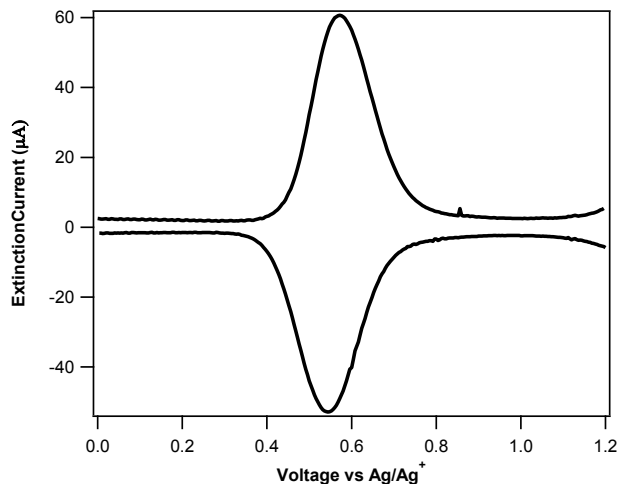
## High Photo-Currents with a Zwitterionic Thiocyanate-Free Dye in Aqueous-Based Dye Sensitized Solar Cells

Remi Fayad, Tharallah A. Shoker and Tarek H. Ghaddar\*

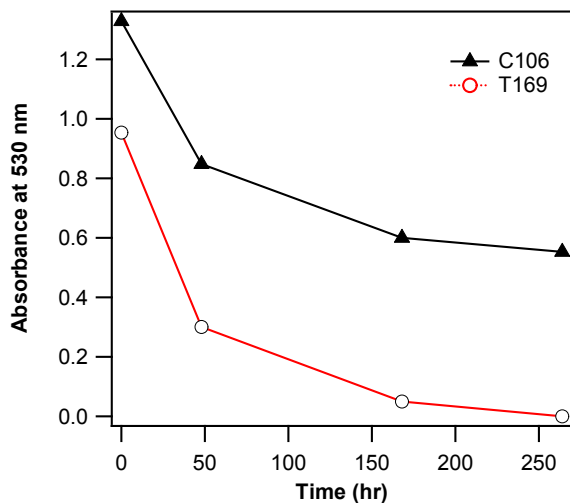


**Scheme S1:** Structures of the dyes used.





**Figure S1:** Cyclic (upper) and differential pulse (lower) voltammograms (0.1 M LiClO<sub>4</sub>) in acetonitrile scan for **T169** as anchored on 7 μm TiO<sub>2</sub> film.



**Figure S2:** Absorbance changes in C106 (black-triangles) and T169 (red-circles) dyed titania films (7 μm) in 20 mL buffer solution at pH = 5.0 over time monitored at 530 nm.

#### References:

1. T. A. Shoker, R. Tanios, R. Fayad and T. H. Ghaddar, *RSC Advances*, 2015, **5**, 66047-66056.
2. F. Gao, Y. Wang, D. Shi, J. Zhang, M. Wang, X. Jing, R. Humphry-Baker, P. Wang, S. M. Zakeeruddin and M. Grätzel, *J. Am. Chem. Soc.*, 2008, **130**, 10720-10728.
3. B. C. O'Regan, J. R. Durrant, P. M. Sommeling and N. J. Bakker, *J. Phys. Chem. C*, 2007, **111**, 14001-14010.
4. Y.-M. Xiao, J.-Y. Lin, J.-H. Wu, S.-Y. Tai and G.-T. Yue, *Electrochim. Acta*, 2012, **83**, 221-226.

PROTON

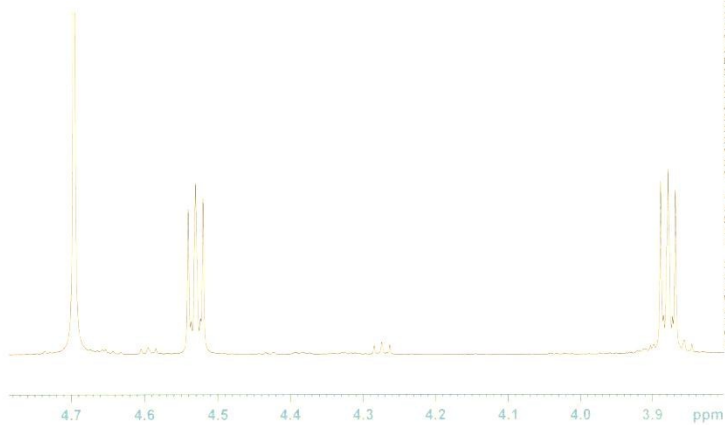


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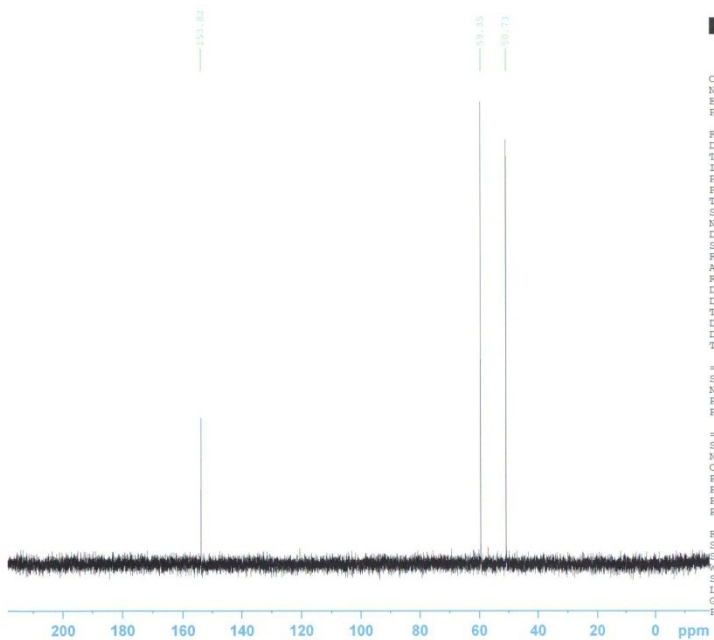
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DS 2  
SWH 10000.000 Hz  
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RG 68.83  
DW 50.000 usec  
DE 6.50 usec  
TE 293.0 K  
D1 1.0000000 sec  
TDO 1

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NUC1 1H  
P1 10.40 usec  
PLWL 21.00000000 W

F2 - Processing parameters  
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GB 0  
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C13CPD



```
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PROCNO    1

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SOLVENT   D2O
NS         1024
DS         2
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FIDRES     0.454131 Hz
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RG         186.18
DW         16.800 usec
DE         6.50 usec
TE         294.9 K
D1         2.0000000 sec
D11        0.0300000 sec
TDO        1

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P1         8.00 usec
PLW1      110.0000000 W

***** CHANNEL f2 *****
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NUC2       1H
CPDPRG[2] waltz16
PCPD2      80.00 usec
PLW2      21.0000000 W
PLW12     0.3549000 W
PLW13     0.22713999 W

F2 - Processing parameters
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H and C NMR of DS

PROTON

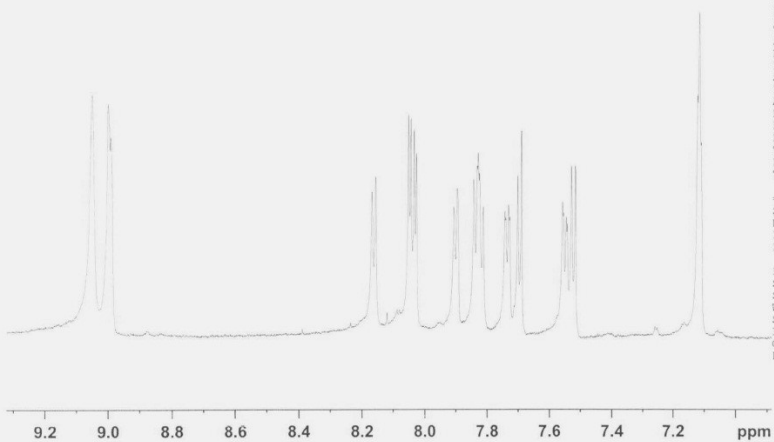


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DS 2  
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FIDRES 0.152588 Hz  
AQ 3.2761959 sec  
RG 54.99  
DW 50.000 usec  
DE 6.50 usec  
TE 291.5 K  
DL 1.00000000 sec  
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P1 10.40 usec  
PLW1 21.00000000 W

F2 - Processing parameters  
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WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00



H NMR of T169.