



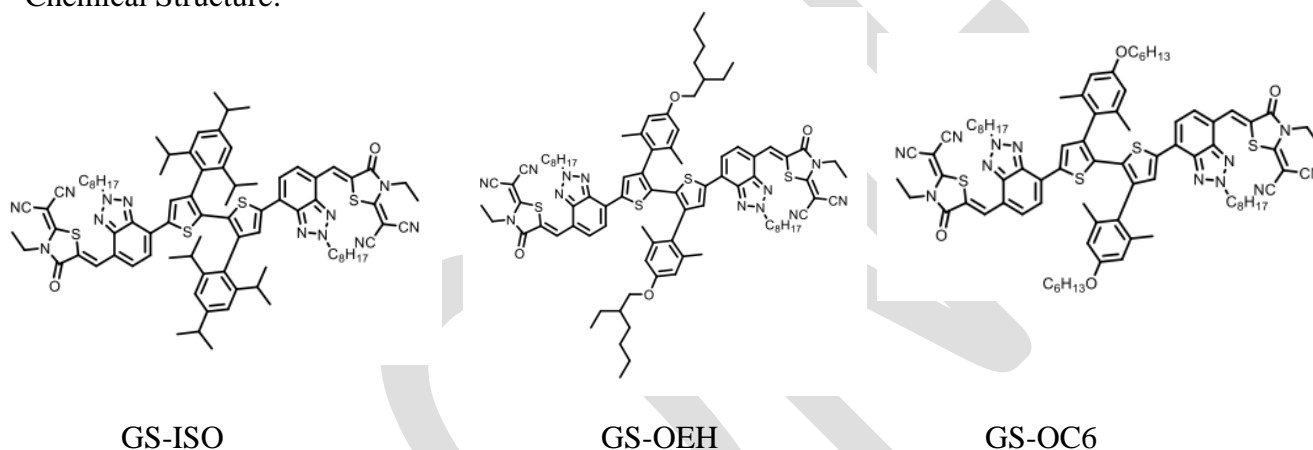
# Non-Fused Ring NFA

1-Material Inc

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Organic Nano Electronic(ONE=1) Materials for these who understand quality

NFA: GS-ISO, GS-OC6, GS-OEH; custom made for laboratory use  
Remark: Tandem OPV, PCE>20%  
Reference: <https://doi.org/10.1039/D0QM00633E>  
Chemical Structure:

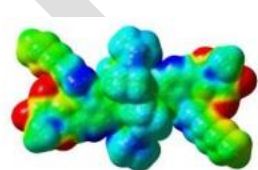
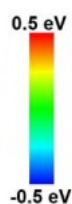


**Table Photovoltaic performance of the tandem OSCs under AM 1.5G, 100 mW cm<sup>-2</sup>**

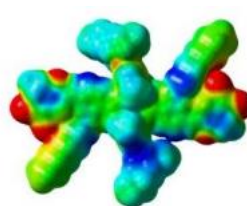
ICL	V <sub>oc</sub> (V)	J <sub>sc</sub> (mA/cm <sup>2</sup> )	FF (%)	PCE (%) <sup>a</sup>
TiO <sub>x</sub> QDs/PEDOT:PSS	1.49 (1.49 ± 0.01)	11.34 (10.71 ± 0.54)	47.94 (48.01 ± 0.88)	8.10 (7.63 ± 0.35)
e-TiO <sub>1.62</sub> /PEDOT:PSS	1.89 (1.88 ± 0.01)	13.24 (13.37 ± 0.19)	72.09 (70.80 ± 0.56)	18.04 (17.82 ± 0.18)
e-TiO <sub>1.76</sub> /PEDOT:PSS	2.01 (2.00 ± 0.01)	13.14 (13.24 ± 0.27)	76.75 (75.47 ± 1.06)	20.27 (20.00 ± 0.35)
e-TiO <sub>1.89</sub> /PEDOT:PSS	1.96 (1.95 ± 0.01)	11.28 (11.66 ± 0.36)	60.75 (58.49 ± 1.82)	13.43 (13.30 ± 0.11)
e-TiO <sub>1.76</sub> /PEDOT:PSS <sup>b</sup>	2.019	12.97	76.3	20.0

<sup>a</sup>The photovoltaic parameters of the best OSC. The average parameters and standard deviations of 10 independent cells are shown in parentheses, respectively.

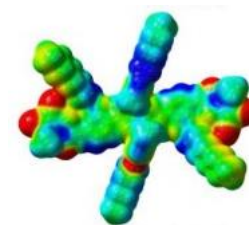
<sup>b</sup>The results certified by NIM.



GS-ISO



GS-OEH



GS-OC6

LUMO(eV)	-3.22	-3.17	-3.17
HOMO(eV)	-5.35	-5.31	-5.31

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# Non-Fused Ring NFA

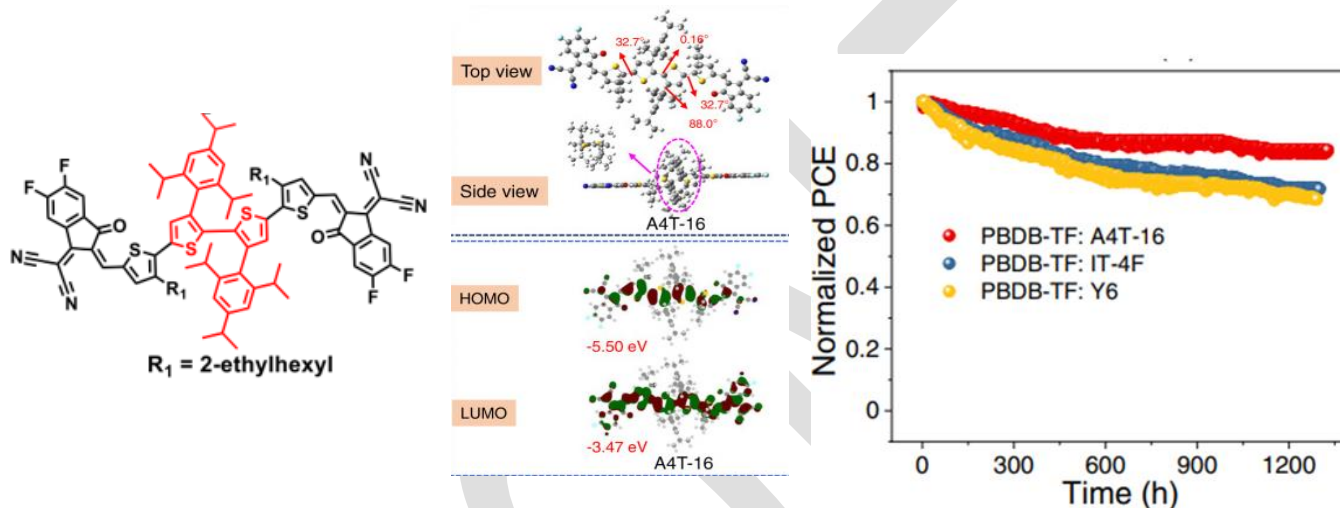
## & Semi-Fused Ring NFAs

Reference:

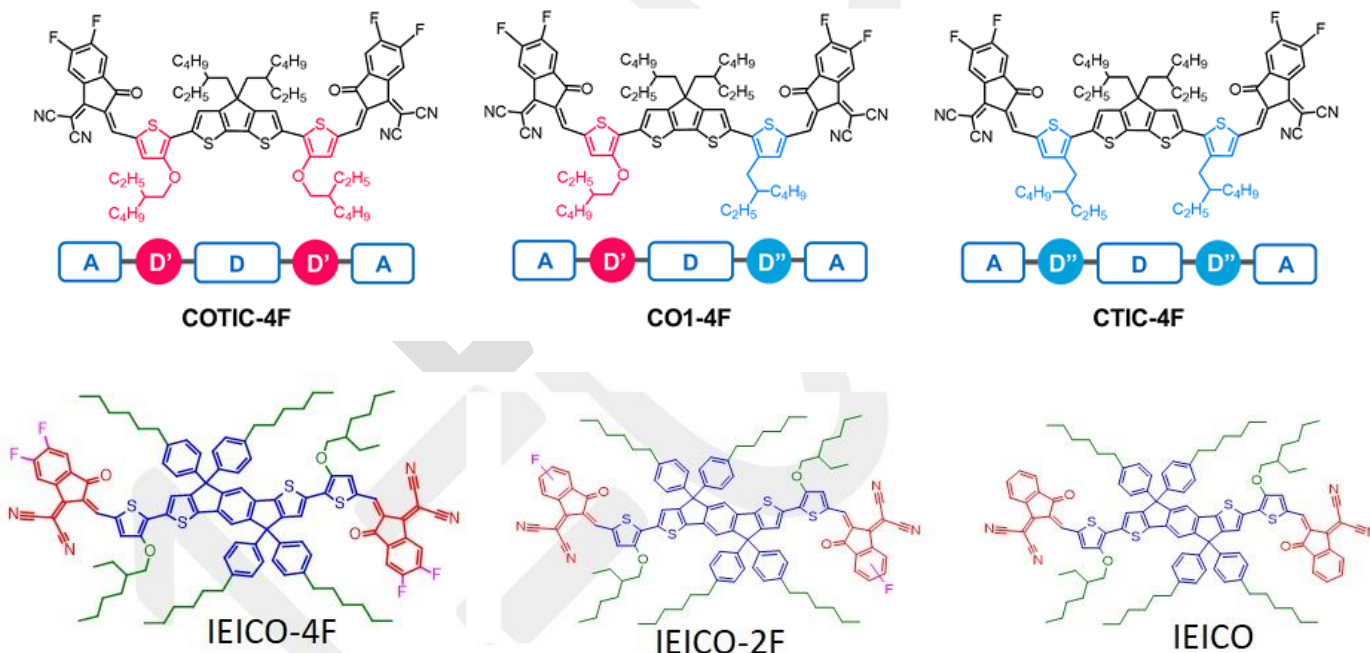
A4T-16 : <https://doi.org/10.1038/s41467-021-25394-w>

Remark:

15.2% = PCE from PBDB-TF:A4T-16 OPV device, and 1300 h under the simulated AM 1.5 G illumination ( $100 \text{ mW cm}^{-2}$ ) (~84%).



### Semi-Fused Ring NFAs Examples



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