Supporting Information

Aqueous-solution-processed proton-conducting carbon nitride/polyvinylpyrrolidone composite electrolytes for low-power synaptic transistor with learning and memory functions

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Fig. S1 The optical image of precursor solution.

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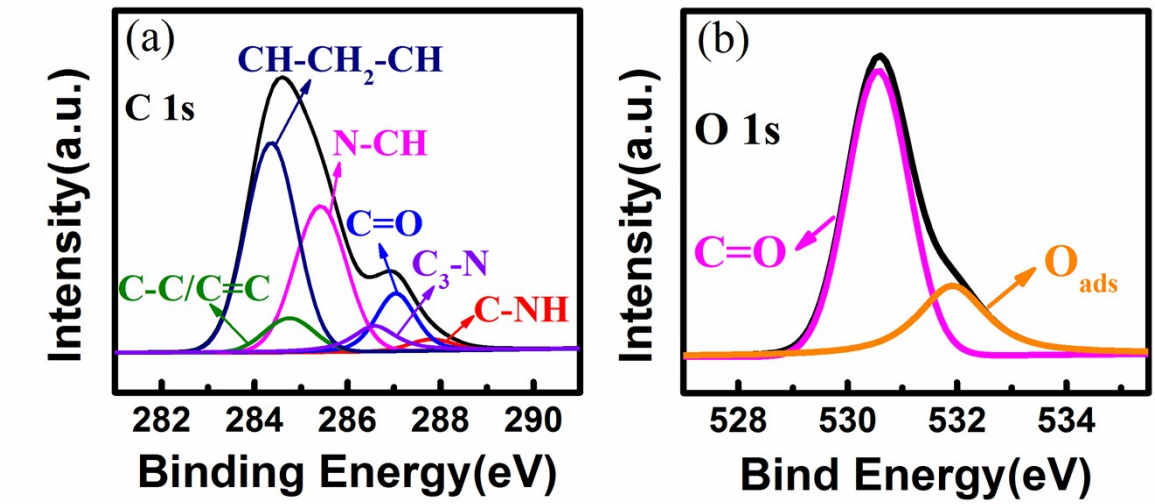

Fig. S2 The detailed C 1s (a) and O 1s (b) spectrum.

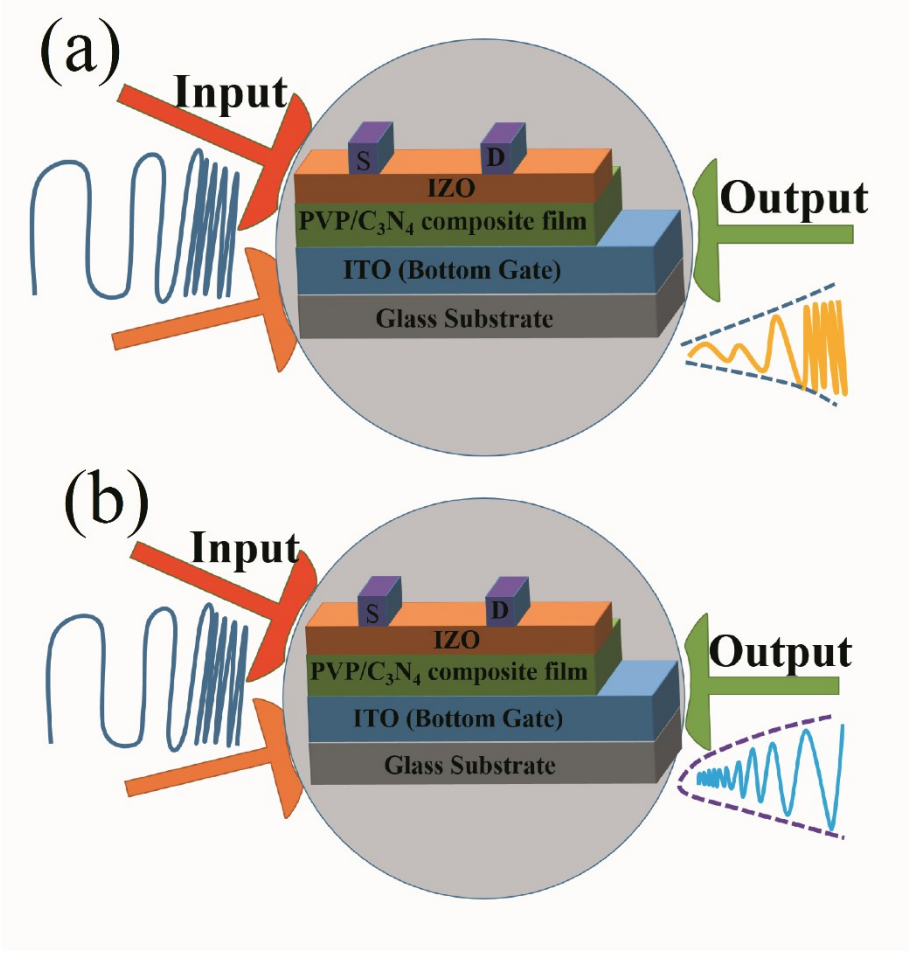

Fig. S3 A schematic diagram of the high filter (a) and low filter (b) characteristics

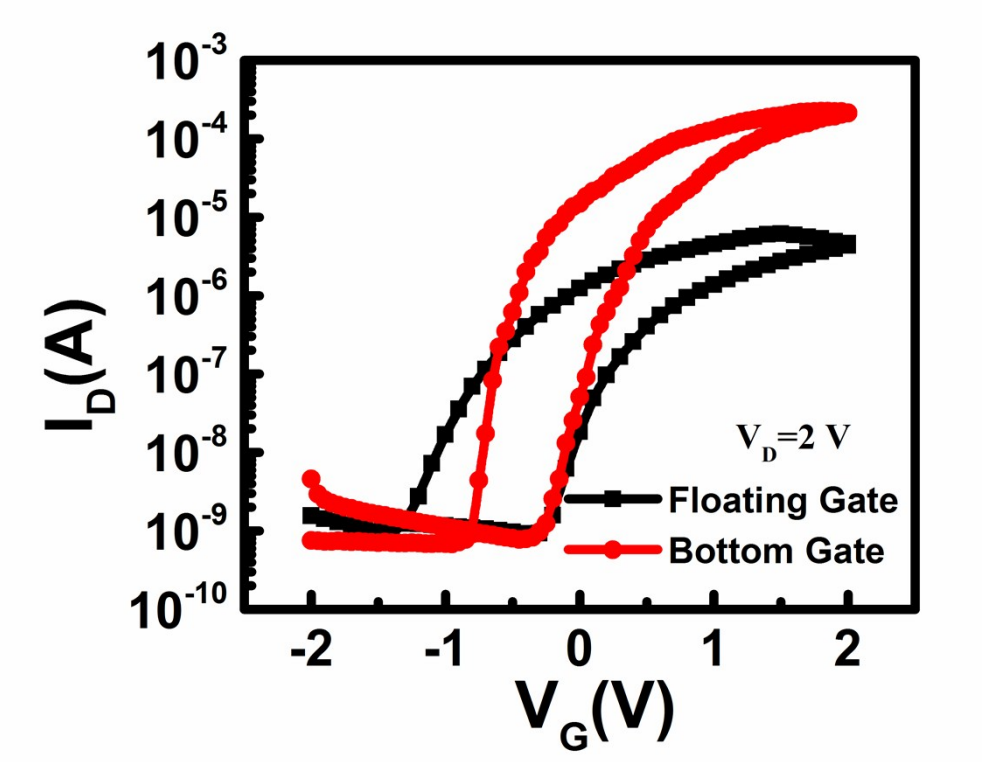

Fig. S4 The transfer curves of the bottom gate and the floating gate.

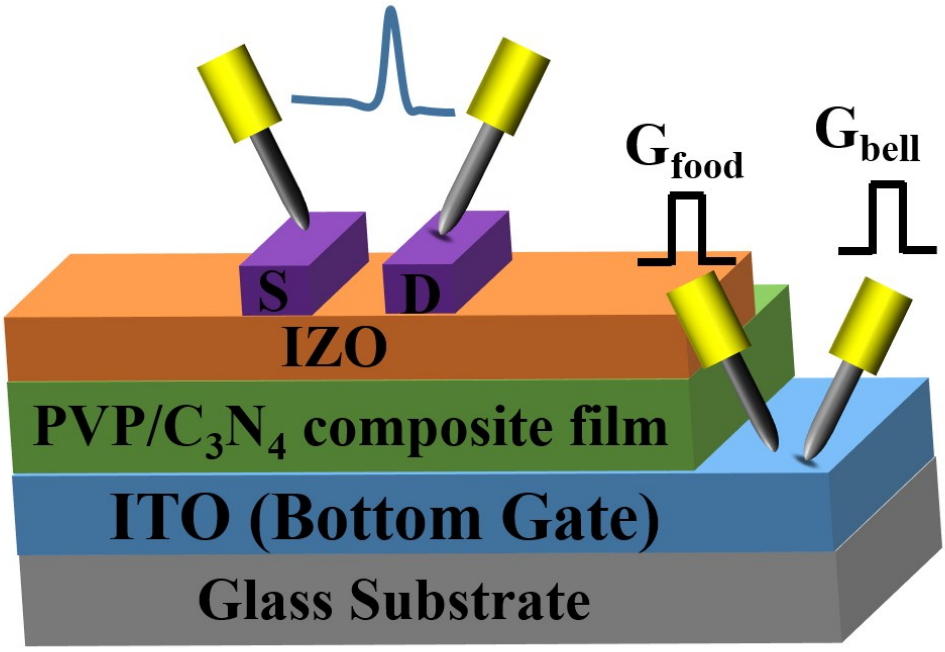

Fig. S5 Schematic diagram of conditioned reflection measurement.

Table S1. The comparison of device performance with previous reported synaptic transistor based on other materials. [1-8]

Electrolyte layer	Capacitance($\mu F/cm^2$)	Electrical performance			Synaptic performance		Ref.
		n/p channel	Saturation mobility	Threshold voltage	PPF index	energy consumption	
IL(ionic liquid)		p	-	-0.5 V	-	4.8pJ	1
nanogranular SiO_2	3.0	n	-	-0.7 V	180%	1.4nJ	2
IL		n	-	0.52 V	168%	36pJ	3
IL-PVP	2.0	n	9	-	143%	3.5nJ	4
Wood-Derived Nanopaper Dielectrics	0.018	p	1.25	-	135%	0.39nJ	5
Chitosan		n	-	-	180%	-	6
Chitosan-Based Polysaccharide-Gated Graphene Oxide	10	n	3.6		128%	1.06nJ	7
	10.8	n	34	0.5 V	180%	-	8
PVP/C_3N_4	2.06	n	75.4	0.33 V	198%	0.32nJ	This work

Reference

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