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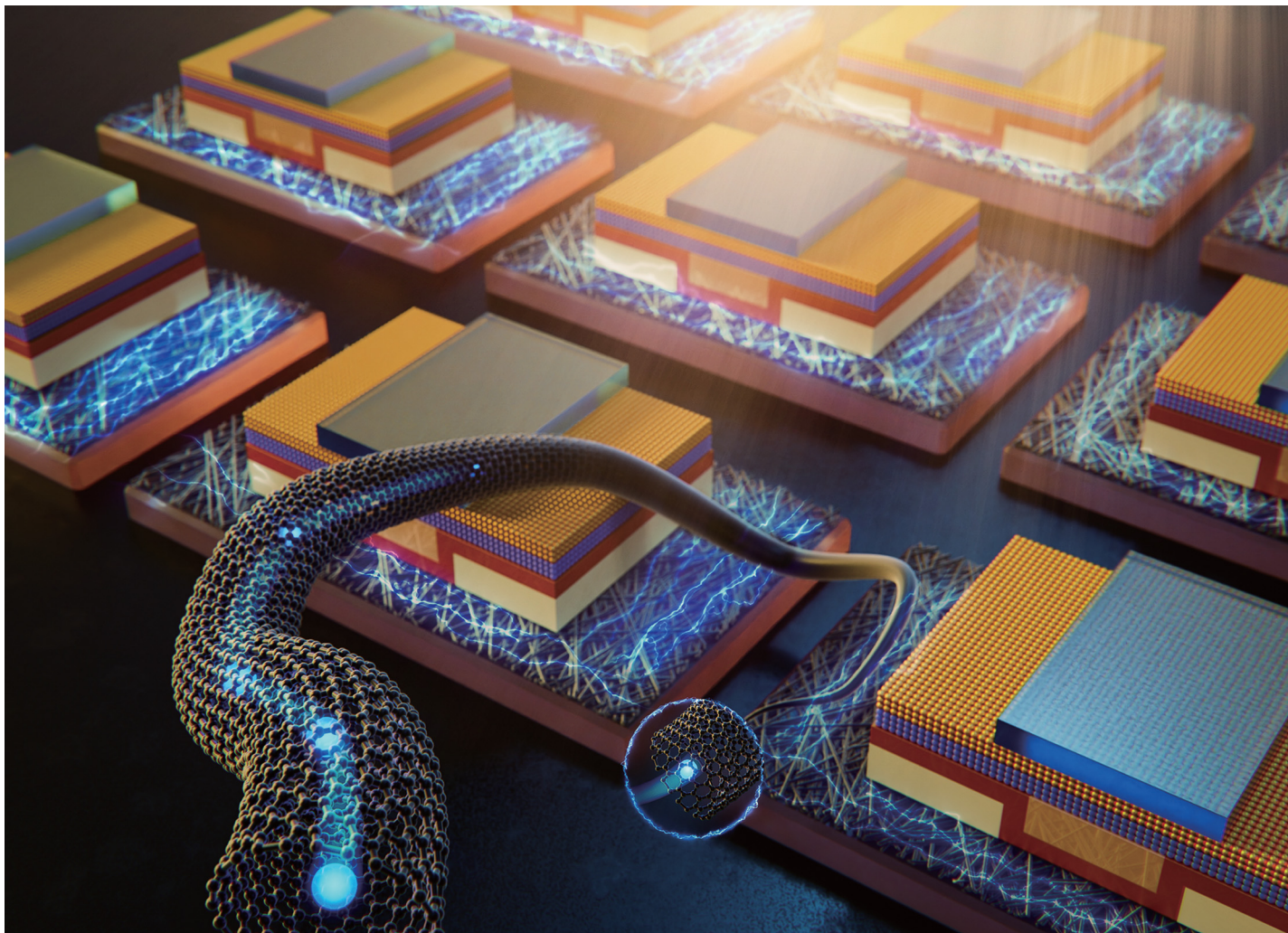
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**Showcasing research from the Group of Prof. Juexian Cao and Assoc. Prof. Junlong Tian at Xiangtan University, China**

A near-infrared photodetector based on carbon nanotube transistors exhibits ultra-low dark current through field-modulated charge carrier transport

A common problem associated with photodetectors (PDs) is a high dark current. In this study, a PbS quantum dot heterojunction combined with a carbon nanotube (CNT) field effect transistor is designed to overcome this common problem of PDs. The NIR PD achieves field-modulated carrier transport in a CNT transistor, in which the dark current is effectively regulated by the gate voltage, showing an ultra-low dark current of 8 pA.

**As featured in:**



See Junlong Tian, Juexian Cao *et al.*,  
*Phys. Chem. Chem. Phys.*,  
2023, **25**, 26991.