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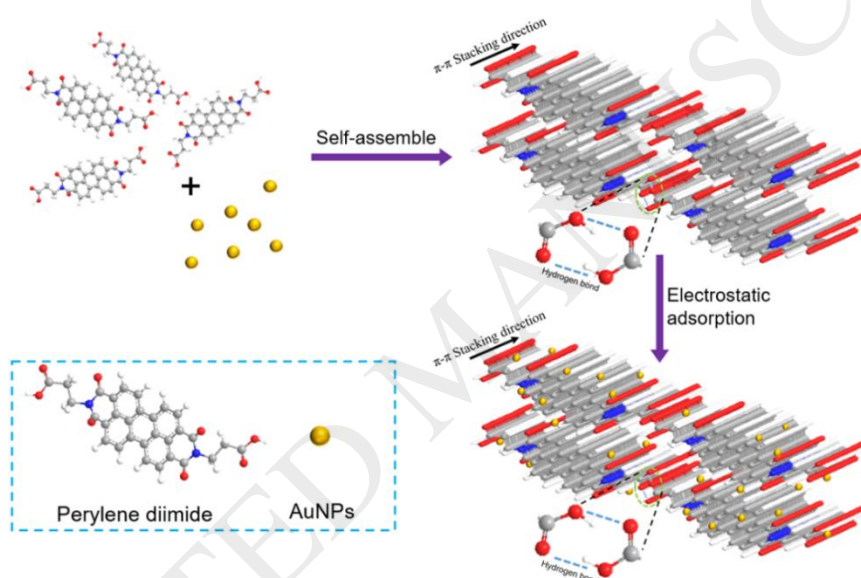
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GRAPHICAL ABSTRACT



PDI materials are considered as a promising route to mitigate water pollution or other environmental problems. Otherwise, surface plasmon resonance (SPR) effect of the AuNPs could promote the absorption of visible light effectively. Herein, SPR-supported visible-light-responsive photocatalyst of PDI@AuNPs were prepared through the electrostatic adsorption. The results show that the PDI@AuNPs composite appeared higher visible light degradation rate (k) towards the phenol, which is 1.7 times than the PDI nanowires. The system of the PDI@AuNPs composite is responsible for the highly efficient photocatalytic degradation of pollutants. What's more, the PDI@AuNPs composite simultaneously exhibits great stability and cycle utilization than the pure PDI.

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