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**Two compatible nonfullerene acceptors with similar structures as alloy for
efficient ternary polymer solar cells**

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Abstract:

In this work, we fabricated high efficient ternary PSCs based on two compatible non-fullerene acceptors (IDIC and ITIC) with similar chemical structures and one new D-A-type polymer (PSTZ) donor. By inserting ITIC into the binary PSTZ:IDIC system, the active layer show smooth and gradient energy levels, improved crystallinity and optimized morphologies, which results in efficient exciton separation, charge transport and collection. As a result, the optimal ternary PSCs based on PSTZ:ITIC:IDIC (1:0.1:0.9) exhibited a higher PCE of 11.1% with a V_{oc} of 0.953 V,

¹ contributed equally to this work.

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