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Title:Electron and hole contributions to the terahertz photoconductivity of a conjugated polymer:Fullerene blend identified
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Abstract:Time-resolved terahertz spectroscopy was employed for the investigation of charge-transport dynamics in benzothiadiazolo-dithiophene polyfluorene ([2,7-(9,9-dioctyl-fluorene)-alt-5,5-(4′,7′-di-2-thienyl-2′, 1′,3′-benzothiadiazole)]) (APFO-3) polymers with various chain lengths and in its monomer form, all blended with an electron acceptor ([6,6]-phenyl-C61-butyric acid methyl ester, PCBM). Upon photoexcitation, charged polaron pairs are created, negative charges are transferred to fullerenes, while positive polarons remain on polymers/monomers. Vastly different hole mobility in polymer and monomer blends allows us to distinguish the hole and electron contributions to the carrier mobility. © 2012 American Chemical Society.
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