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Title:Ultrafast terahertz photoconductivity of bulk heterojunction materials reveals high carrier mobility up to nanosecond time scale
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Abstract:The few-picosecond (ps) decay of terahertz (THz) photoconductivity typically observed for conjugated polymer:fullerene blends (at excitation fluencies ∼10sup15/sup photons/cmsup2/sup per pulse) is shown to be a result of charge pair annihilation for two polymer:PCBM blends. At a factor of 100 lower excitation density, the THz decay is in the hundreds of ps time scale, implying that very high carrier mobility (∼0.1 cmsup2/sup V sup-1/sup ssup-1/sup) prevails for long time after charge formation, of importance for free charge formation in organic solar cells. © 2012 American Chemical Society.
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