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Title:Electron transfer in quantum-dot-sensitized ZnO nanowires: Ultrafast time-resolved absorption and terahertz study
Authors:Zídek, Karel (1); Zheng, Kaibo (1); Ponseca, Carlito S. (1); Messing, Maria E. (2); Wallenberg, L. Reine (3); Chábera, Pavel (1); Abdellah, Mohamed (1); Sundström, Villy (1); Pullerits, Tõnu (1)
Author affiliation:(1) Department of Chemical Physics, Lund University, Box 124, 22100 Lund, Sweden; (2) Solid State Physics, Lund University, Box 118, 22100 Lund, Sweden; (3) Center for Analysis and Synthesis/nCHREM, Lund University, Box 124, 22100 Lund, Sweden
Corresponding author:Pullerits, T.(Tonu.Pullerits@chemphys.lu.se)
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Abstract:Photoinduced electron injection dynamics from CdSe quantum dots to ZnO nanowires is studied by transient absorption and time-resolved terahertz spectroscopy measurements. Ultrafast electron transfer from the CdSe quantum dots to ZnO is proven to be efficient already on a picoseconds time scale (τ = 3-12 ps). The measured kinetics was found to have a two-component character, whose origin is discussed in detail. The obtained results suggest that electrons are injected into ZnO via an intermediate charge transfer state. © 2012 American Chemical Society.
Number of references:43
Main heading:Zinc oxide
Controlled terms:Cadmium alloys - Cadmium compounds - Charge transfer - Electron transitions - Nanowires - Semiconductor quantum dots
Uncontrolled terms:CdSe quantum dots - Charge transfer state - Electron transfer - Photoinduced electrons - Picoseconds - Spectroscopy measurements - Tera Hertz - Terahertz study - Time-resolved - Time-resolved absorption - Time-scales - Transient absorption - Two-component - Ultra-fast - Ultrafast electron transfer - ZnO - ZnO nanowires
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