



SD01 : Transient and photoinduced phenomena in Semiconductors: From Fundamental Physics to devices Applications

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Content:

This mini-colloquium aims to convene the community focused on **photoinduced transient phenomena in semiconductors**, spanning fundamental mechanisms to applications in photovoltaic and optoelectronic devices. Key themes include **electron-phonon coupling, polaron formation, collective effects, hot carriers, excitons, defect trapping, interface recombination, and ion migration**. A particular emphasis will be placed on **time-resolved spectroscopic approaches**, as well as **in situ/operando techniques**—especially those coupling **electron/X-ray and optical and scanning probes**—to elucidate dynamic processes. Contributions illustrating **stability probing of device performance** under operational conditions are also highly encouraged. Microscopy techniques are also in the scope of this colloquium (Cathodoluminescence, TEM, SEM, scanning probes). Emerging materials such as **organic semiconductors, halide perovskites, two-dimensional materials, and classical semiconductors (GaAs, CIGS)** will be highlighted. The goal is to foster interdisciplinary exchanges among **materials physicists, chemists, and photonics specialists**, bridging fundamental properties with device performance.

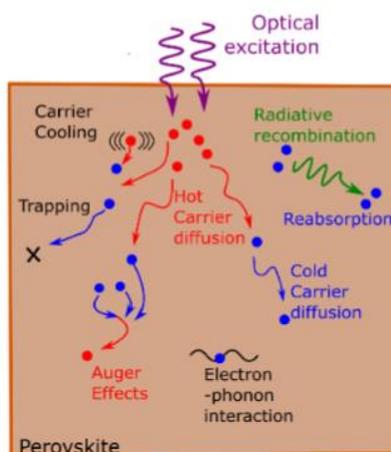


Figure 1 : Schematic highlighting key photophysical phenomena related to carrier from Delport, G et al (2020) *Advanced Energy Materials*, 10(26), 1903814..