

SUPPLEMENTARY MATERIALS

Electric Field Mapping of Optically Perturbed CdTe Radiation Detectors

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1. Simulated Electric Field maps/profiles at different instants

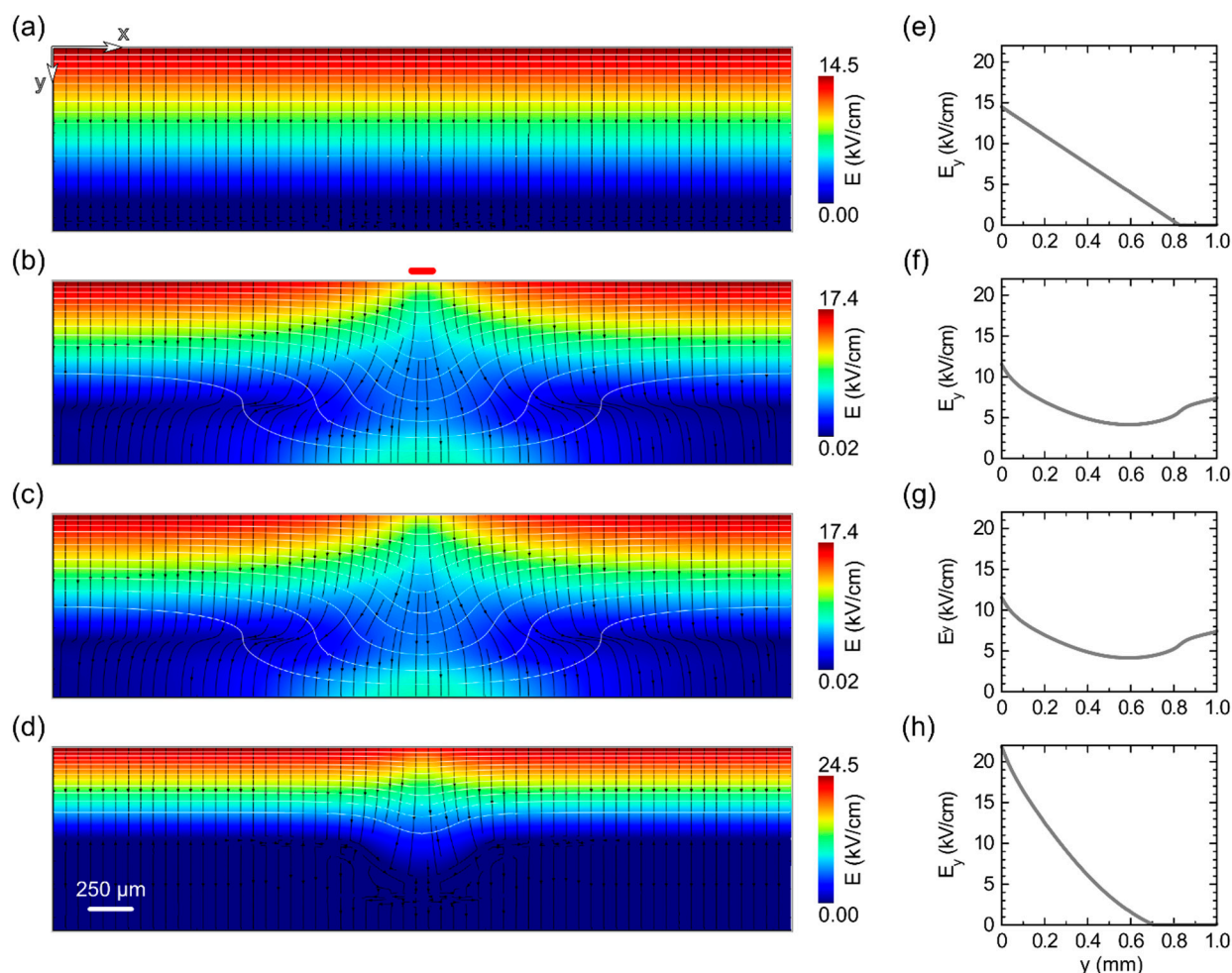


Figure S1 Simulated Electric Field maps corresponding to the experimental ones in Fig.1: a) under dark, just before optical irradiation; b) under light, after 5 min of optical irradiation; c) under dark, 2 sec after the light switch-off; d) under dark 15min after the light switch-off. The corresponding profiles at $x=0$ are also reported aside each map.

2. Simulated space charge profiles at different instants

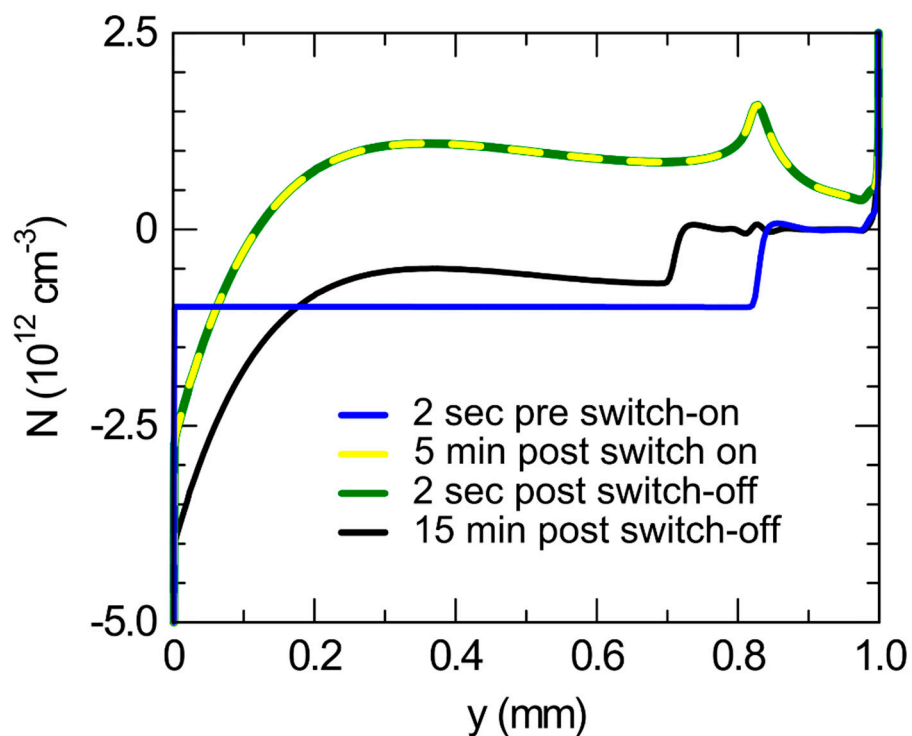


Figure S2 Simulated space charge profiles at $x=0$ (center of optical irradiation) at different instants: under dark just before light (black), under light, after 5 min of optical irradiation (green), under dark, 15 min after the light switch-off (blue). The peak of positive space charge under light corresponds to the maximum trapping occurring where the electric field becomes negligible near the cathode.

3. Simulation parameters

Table S1. Some relevant parameters of the simulations including those of the 2-level model.

CdTe		
Shallow donor level (fully ionized)	Concentration N_d	$2.8 \times 10^{13} \text{cm}^{-3}$
Acceptor deep level	Energy $E_c - E_a$	0.725eV
	Concentration N_a	$5.8 \times 10^{13} \text{cm}^{-3}$
	Electr. capture cross section σ_{ea}	$1 \times 10^{-18} \text{cm}^2$
	Hole capture cross section σ_{ha}	$1.5 \times 10^{-19} \text{cm}^2$
Electron mobility		$1000 \text{cm}^2/(\text{Vs})$
Hole mobility		$80 \text{cm}^2/(\text{Vs})$
Absorption coefficient		Ref. [30]
In/CdTe/Pt Schottky diode		
In/CdTe	electron barrier Φ_{In}	0.5eV
Pt/CdTe	electron barrier Φ_{Pt}	0.8eV
Other parameters		
Temperature		40°C