Supporting Information

Electrospun amplified fiber optics

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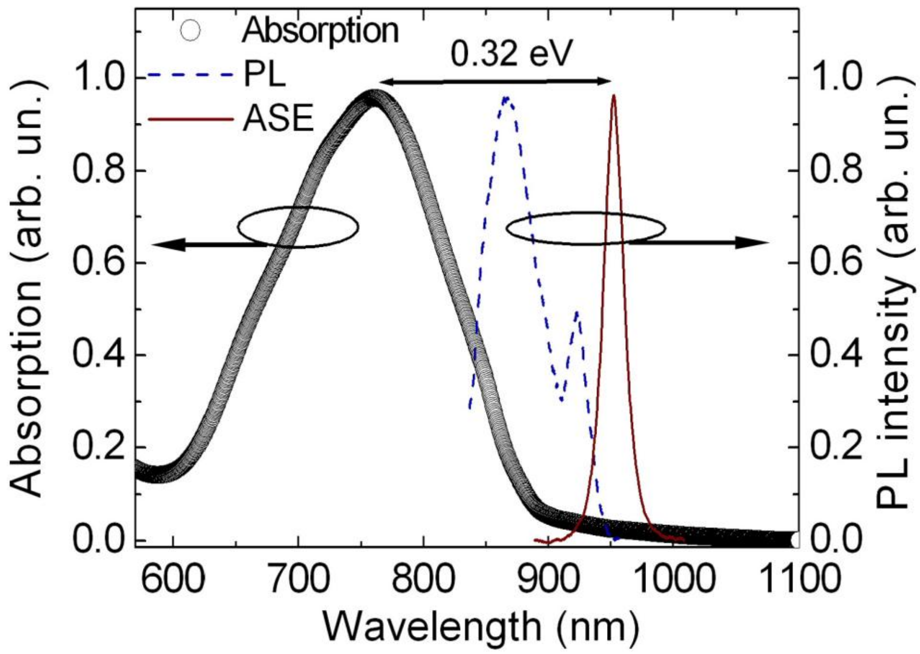

Figure S1. Normalized absorption, photoluminescence and ASE spectra of IR144-based films. The presence of a double emission band is observed in the photoluminescence spectrum. Absorption-ASE shift = 0.32 eV.

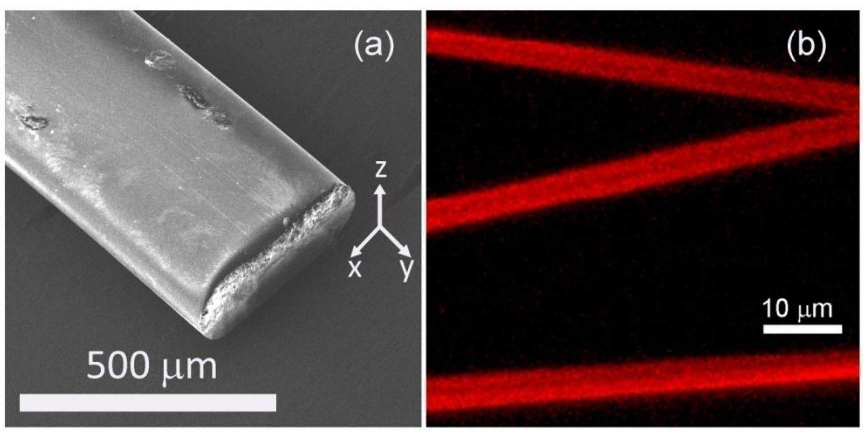

Figure S2. (a) SEM micrograph of a thick electrospun fiber (cross-sectional size = 470×70 μm^2). (b) Confocal micrograph of a few micrometer-sized, IR 144-doped fibers. The fibers show uniform emission along their main axis, without evidence for microscale defects or significant dye clustering.

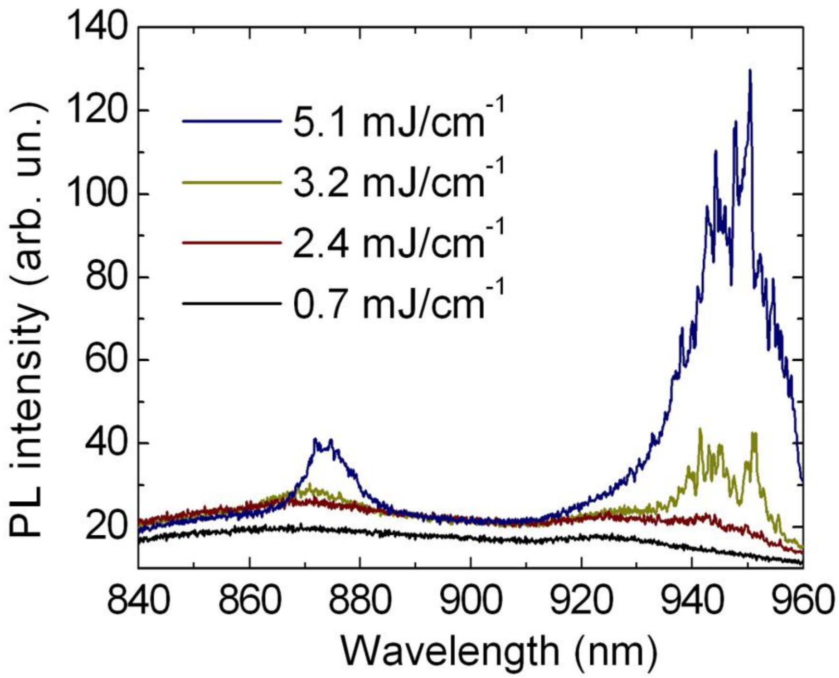

Figure S3. Full range emission of IR 144-doped films vs. excitation fluence, acquired by a Si CCD. Two spectral bands show ASE, with different threshold and peak features. The 870-880 nm peak has a threshold at about 3 mJ/cm^2. The 950 nm peak shows higher intensity together with very sharp features, ascribable to random feedback due to light scattering on micrometric clusters, whereas the apparent low signal at higher wavelengths is due to low detector sensitivity. The random lasing is largely removed in electrospun fibers, where the fabrication conditions contribute to well distribute the dye in the PMMA matrix.

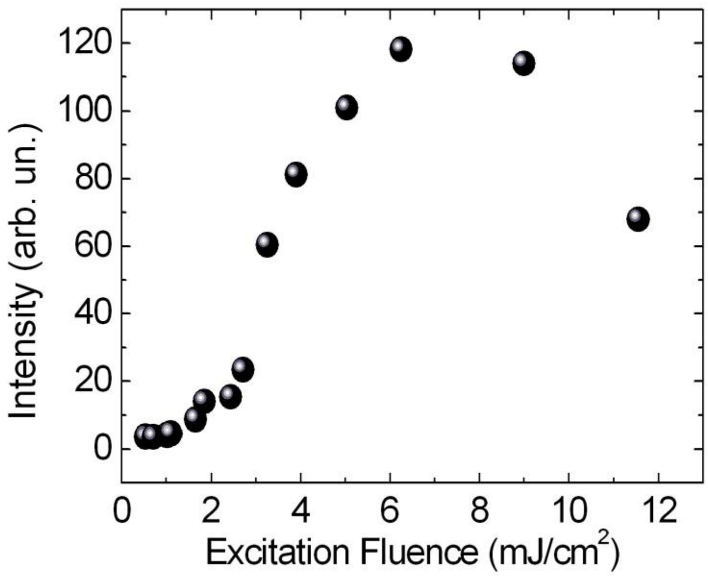

Figure S4. ASE intensity of IR 144-doped fibers, for excitation fluences up to about 12 mJ/cm^2. Photobleaching is seen at 10-12 mJ/cm^2.