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(54) Title: VOLTAGE-CONTROLLABLE MONOLITHIC NATIVE RGB ARRAYS

(57) Abstract: A light emitting diode structure comprising: a p-type region; an n-type region; a gate contact; a first light emitting region for recombination of carriers injectable by the p-type region and the n-type region; and a second light emitting region for recombination of carriers injectable by the p-type region and the n-type region, wherein the first light emitting region and the second light emitting region at least partially overlap to form a light emitting surface associated with the first light emitting region and the second light emitting region; wherein the p-type region is at least partially formed in a first channel through the first light emitting region and the second light emitting region, and the n-type region is at least partially formed in a second channel through the first light emitting region and the second light emitting region, wherein the light emitting device is configured such that the wavelength of light emitted by the light emitting surface is controllable by varying a gate voltage applied to one of the p-type and n-type regions by the gate contact thereby to alter carrier injection by the p-type and n-type regions into the first and second light emitting regions



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