

Abstract Submitted  
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**Photoluminescence blinking of InGaN Single Quantum Well: a study on time correlation**<sup>1</sup> RUGGERO MICHELETTO, SHO SUZUKI, YOICHI KAWAKAMI, Kyoto University, Graduate School of Engineering, Dept. of Electronics Science — We studied the photoluminescence of Indium Gallium Nitride (InGaN) single quantum well crystals and found that in particular conditions it becomes unstable (optical blinking). This peculiar optical phenomenon is confined to few hundreds nanometers domains and is presumably related to the presence of dislocations or impurities in the quantum well. Moreover, time evolution of these blinking domains is not regular, but characterized by a random-like behavior with a certain degree of auto-correlation. It was found that distant domains do not blink independently, but are partially time-correlated in couples or groups. This suggests the existence of preferred carriers paths within the crystal; these pathways are not detectable by other means, but reveal themselves only through blinking. We believe this phenomenon is of interest to better understand fundamental carrier recombination processes and may help in the effort to realize novel and more efficient optical devices.

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