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Demonstration of strong photoluminescence in the deep-green/yellow region from InGaN/GaN multiple quantum wells grown on native AlN substrates FATEMEH SHAHEDIPOUR-SANDVIK, JAMES GRANDUSKY, MUHAMMAD JAMIL, College of Nanoscale Science and Engineering, University at Albany-State University of New Yor, SANDRA SCHUJMAN, KEITH EVANS, Crystal IS, Inc. Watervliet, NY 12189, SRIDHAR SRINIVASAN , FERNANDO PONCE, Dept. of Physics and Astronomy, Arizona State University, AZ 85287, COLLEGE OF NANOSCALE SCIENCE AND ENGINEERING, UNIVERSITY AT ALBANY-STATE UNIVERSITY OF NEW YORK COLLABORATION, CRYSTAL IS. INC, WATERVLIET, NY COLLABORATION, DEPT. OF PHYSICS AND ASTRONOMY, ARIZONA STATE UNIVERSITY, AZ COLLABORATION — Relatively intense deep-green/yellow photoluminescence emission at ∼570 nm is demonstrated for InGaN/GaN multi quantum well structures grown on native AlN substrates, showing potential to extend commercial III-N LED technology to longer wavelengths. Temperature- and excitation-power dependent photoluminescence and cathodoluminescence results show the presence of alloy compositional fluctuation in the active region despite the lower strain expected in the structure. This is contrary to what has been observed for lower In content InGaN/GaN MQWs on bulk GaN substrates with sharp interfaces and little alloy compositional fluctuation in the InGaN layers. Detailed optical characterization results will be presented .

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