

Abstract Submitted
for the NEF13 Meeting of
The American Physical Society

Non-conventional white light emission of Al_2O_3 induced by laser diode excitation JOSEPH LIGUORI, GOKHAN BILIR¹, Department of Physics, Boston College, Chestnut Hill, MA 02467, GONUL OZEN, Department of Physics, Istanbul Technical University, Istanbul, Turkey, BALDASSARE DI BARTOLO, Department of Physics, Boston College, Chestnut Hill, MA 02467 — We discovered broadband yellowish white light emission from commercially obtained nominally un-doped $\gamma\text{-Al}_2\text{O}_3$ nano-powders with a crystalline size of less than 50 nm. This emission was obtained under 975 nm laser diode excitation. We measured the spectrum, decay time, and rise time of this white light under a variety of conditions, such as various environment pressures, temperatures, pumping powers and pumping wavelengths. We also studied the decay- and rise times of various wavelengths within the emission spectrum. The white light spectrum was ranged from 450 to 950 nm. Its intensity was not dependent on the temperature of the samples, but was strongly dependent on pressure, with higher values at low pressure. It was also dependent on pumping laser power.

¹Department of Physics, Istanbul Technical University, Istanbul, Turkey

Joseph Liguori
Department of Physics, Boston College, Chestnut Hill, MA 02467

Date submitted: 09 Aug 2013

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