

Graphene lighting

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Abstract (Century Gothic 11)

The intense white light emission is observed for graphene foam upon irradiation with CW infrared laser diode. The laser induced white emission (LIWE) strongly depends on laser fluency. The lighting is accompanied by efficient photocurrent, field and electron emissions. The laser induced white light emission is the nonlinear process characterized by threshold behavior, exponentially scaled by the power excitation density dependence. The order of scaling decreases with excitation density. The light intensity may be drastically enhanced with applied voltage. The bias effect suggests the possibility for designing new photovoltaic cells and phototransistors. Applications of LIWE for sustained white lighting sources are presented.

References

- [1] W. Strek, R. Tomala, M. Lukaszewicz, B. Cichy, Y. Gerasymchuk, P. Gluchowski, L. Marciniak, A. Bednarkiewicz, D. Hreniak, Laser induced white lighting of graphene foam, *Sci. Rep.* 7 (2017) 41281. doi:10.1038/srep41281. Authors, Journal, Issue (Year) page
- [2] W. Strek, B. Cichy, L. Radosinski, P. Gluchowski, L. Marciniak, M. Lukaszewicz, D. Hreniak, *Light: Science and Applications*, 4 (2015) e237, doi:10.1038/lisa.2015.10

Figures



Figure 1: The photo of Laser Induced White Emission on graphene foam

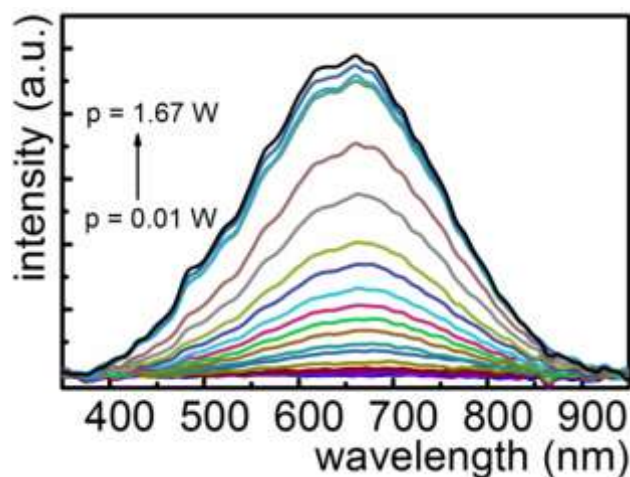


Figure 2: The spectrum of Laser Induced White Emission in function of power excitation
