

Appunti di Fisica '24

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Sala Seminari, CNR-IPCF

Generation of broadband white emission by high power density NIR excitation

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Chair: **Maria Luisa Saladino**

The intense broad band of light emission in visible range was reported for various forms of graphene, such as foam, ceramics, flakes or composites in vacuum upon irradiation with CW infrared laser diode. It was strongly dependent on excitation laser density. The lighting is accompanied by efficient photocurrent and electron emissions. The laser induced white light emission is the nonlinear process characterized by threshold behavior, exponentially scaled by the excitation power density. The order of scaling decreases with excitation density. The white lighting was investigated for different excitation wavelengths. It was found that the lighting threshold decreases with decreasing excitation wavelength. Applications of LIWE of graphene foam for sustained white lighting sources are presented. The phenomenon will be presented for different materials, together with a proposal of the mechanisms responsible for it.

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