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The light source with energetic efficiency exceeding 100%

Abstract

The Light Source is described: a Tube made of Whatman Paper, painted with pink fluorescent gel from inside, with Holes in the wall. The LED Searchlight ULF-F21 is inserted in one end of the tube. The output Voltage of Silicon Solar Panels is evaluated in two cases: 1) the Radiation comes from Holes of the tube and from its Surface; 2) the Radiation comes from LED Searchlight. In the first case the Radiation was more intensive than in the second. Explanation of that fact is connected with photo initiation of Branched Chain Reaction inside the Tube. This Reaction produces electronically excited molecules.

Keywords: photo initiation, chain reaction, fluorescent gel, light energy production, light source, solar panel, output voltage, comparison of output voltage in two cases, energetic efficiency

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Introduction

The possibility of designing a light source with energetic efficiency more than 100% is connected with using photo initiated branched chain reaction, producing electronically excited molecules. Such properties were demonstrated for photo initiated chain reaction in atmospheric Air.[1] Excited complexes O_2 (E=0.976 eV) – O_2 (E=0.976 eV)[1,2] and N_2-O_2(E=4.3 eV)[1,3] are formed in atmospheric air under photo initiation. Descriptions of light sources with radiation power proportional to the reactor length were published earlier.[4,5] It enables one to state, that at some (enough big) reactor length the radiation power of such light source will exceed the power of radiation used for photo initiation. Photo initiated chain reaction on the surface of pink or orange fluorescent gel painted paper was also described recently.[6] Using the tube, made of such painted paper is expected to help in achievement of demanded radiation power with smaller reactor length. The aim of this work was the evaluation of light output from the reactor made of fluorescent gel painted paper and comparison it with light power of LED searchlight, used for photo initiation.

The light source arrangement

Arrangement of the reactor used for experiments is shown on the Figure 1: the Whatman paper, painted with fluorescent gel was used for production of two tubes 110 mm in diameter and 870 mm long. These tubes were disposed in one line. Between tubes was placed a piece of glass with dimensions 120 mm *120 mm. The LED search light ULF-F21 (30 Watt/4000K, 2400 lumen) was inserted in the right end of the right tube. From outside the reactor tubes were covered with aluminium foil. Rectangular holes (13 holes) were cut out on the cylindrical surfaces of tubes.

Results of experiments

The not dispersing light beam from the reactor is observed (Figure 2).This light beam shows strong absorption in the atmospheric air: the brightness of observed light spot on the screen was bigger by one order of magnitude, when the distance between the screen and the left end of the reactor was 20 cm. Intensity of this light beam was not measured, but its presence enables one to state in agreement with results of[4,5] that placing to the left from the described reactor one or more identical reactors would result in observing radiation from additional holes and enhancement of total radiation power produced by the lengthened reactor.

Figure 1 Photo of the reactor made of pink fluorescent gel painted Whatman paper.

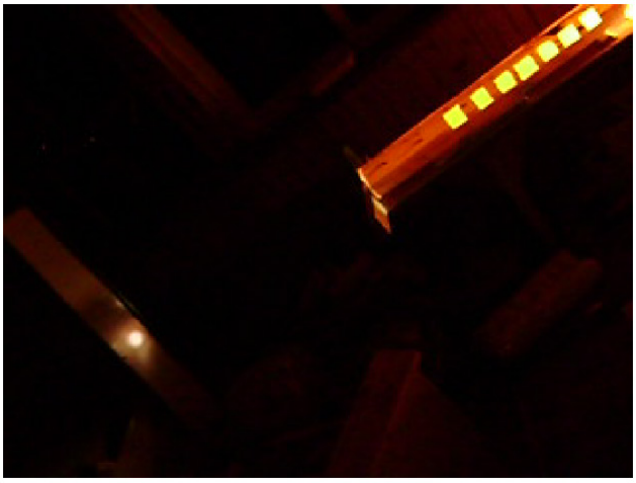

Figure 2 Photo of the light spot on the white screen, disposed at the distance of 1 m from the left end of the reactor. The diameter of observed light spot is about 30 mm, what is equal to the diameter of the hole in the mirror placed right close to the left end of the reactor (Figure 1, 2).

To measure the power of radiation from the holes at cylindrical surface of the reactor two silicon solar panels (OS 100P and FSM-30P) were placed side by side to the reactor. These solar panels were connected in sequence. In this case the output voltage was observed on the screen of oscillograph C1-78 (oscillogramm is placed on the middle part of the Figure 3). The oscillograph sensitivity was 5 V/cm for all oscillogramms. On the left part of the Figure 3 is placed the oscillogramm of Output Voltage in the case, when the search light radiated directly on the solar panel. It can be seen that in last case the light power was some bigger. But the bright radiation from the right part of the reactor not covered with aluminium foil, observed on Figure 1, escaped of measurement in described situation. For this reason one more solar panel FSM-30P were placed in such manner that radiation of the right part of the reactor produced the output voltage of this third solar panel. Its oscillogramm is placed on the right part of Figure 3. To evaluate the total radiation power of the light source under investigation the oscillogramms on the right and on the middle parts of the Figure 3 should be summed. It can be seen that total side radiation from the reactor is stronger than the search light radiation (Figure 3) It should be noted that about 50% of LED search light radiation does not interact with fluorescent gel (its wave length is longer than 630 nm – the fluorescence wave length). One can conclude that the light source under investigation produces two times stronger radiation than the radiation initiating the chain reaction inside the reactor.

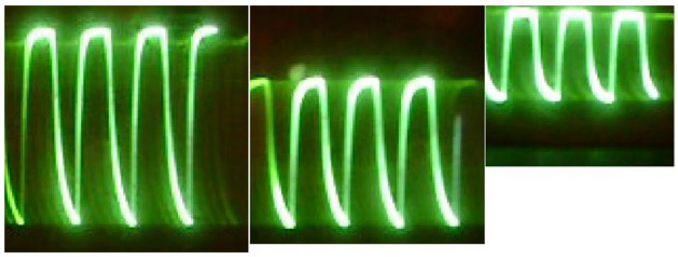

Figure 3 Oscillogramms of the solar panels output voltage in three cases. From left to right: 1) the search light radiates directly on the solar panel OS 100P, connected in sequence to solar panel FSM-30P; 2) two mentioned above solar panels OS 100P (1025 mm long) and FSM-30P (510 mm long) are illuminated by radiation coming from 13 rectangular holes (Figure 1); 3) the third solar panel FSM-30P is illuminated by radiation coming from right part of the reactor (this radiation is directed oppositely to radiation from holes). This radiation was responsible for bright red-yellow light spot seen on the room wall (Figure 1).

Conclusion

The possibility of producing light energy in the photo initiated chain reaction in atmospheric air has been previously demonstrated in articles.[4,5] This work demonstrates that the use of pink and orange fluorescent gel allows for obtaining a radiation power higher than the light power used for chain reaction initiation with a reactor length of 1.0–1.5 m.

Acknowledgments

None.

Conflicts of interest

The author declares there is no conflict of interest.

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