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RESEARCH ARTICLE

DO CARBON NANOTUBES (CNTS) PLAY THE ROLE OF OPTICAL FIBERS IN TRANSMISSION LIGHT FROM THROUGHOUT THEMSELVES

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ABSTRACT

That optical fibers and carbon Nanotubes, today, have vital portion in industry and technology and increasing need for these two fields is clearly visible, is an axiom. In this paper has been tried by expressing some functional similarities between optical fibers and carbon Nanotubes (CNTs), bridge to communicate these two areas to be mapped. Finally, referring to this point that some performed research show optical fibers can be future generation of accelerator; the communication bridge from carbon Nanotubes (CNTs) has been extended. It is worth mentioning that in this review is only to express the idea and no theoretical and experimental work has not been carried out.

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INTRODUCTION

The first of the paper has been formed by common background regarding optical fiber instructor and common review on carbon Nanotubes (CNTs).

Optical fibers

Optical fiber is a type of cylinders playing the role of wave carrier. The canals of beams wrought from three portions. Core, cladding and buffer coating are its portions. Among these, the significant role was played through core carrying the waves of light throughout itself. The principle material to instruct the portion is pure glass (Si). Albeit, to decreasing the cost of instruction, plastics were used instead of pure Si that this decreasing in cost brings some disadvantage along itself such as decrease in quality. Thus, the fiber that was made from plastic often be used in low distance communications. Second portion which named cladding coats the outside environment of core. Its basic task is reflection those beams that were exited from core and enter to the cladding which named total internal reflection.

Finally portion, buffer coating that plastics constitute the main its materials has the duty to protect the fiber from external factors such as force. (Senior, 2009)

Carbon Nanotubes (CNTs)

Carbon Nanotubes (CNTs) which was formed from aggregation of carbon atoms on nano islands of different catalysts on different substrates, has been observed through Sumio Iijima for the first time in late of twenty century random (Iijima, 1991). Carbon nanotubes because having Exclusive properties, physical (Saito *et al.*, 1998), chemical (Fu *et al.*, 2013) and electrical (Anantram and Leonord, 2006) properties due to development day by day in different zone of technology and industry. One of the parameters to appoint carbon nanotubes application is the amount of its diameters that depends on catalyst film thickness, type of used catalyst and reaction time (Mahjour, 2014). The size of diameter and length of carbon Nanotubes are in nano and micro scale respectively. Arc discharge (Shi *et al.*, 1993), laser ablation (Guo *et al.*, 1995) and chemical vapor deposition (CVD) (Osorio *et al.*, 2013) are the most application methods to grow carbon Nanotubes. Among these three methods, chemical vapor deposition (CVD) because having the ability to control synthesis and high efficiency is the most popular method which was improved through plasma (Mahjour, 2015) and microwave (Choy, 2003) techniques.

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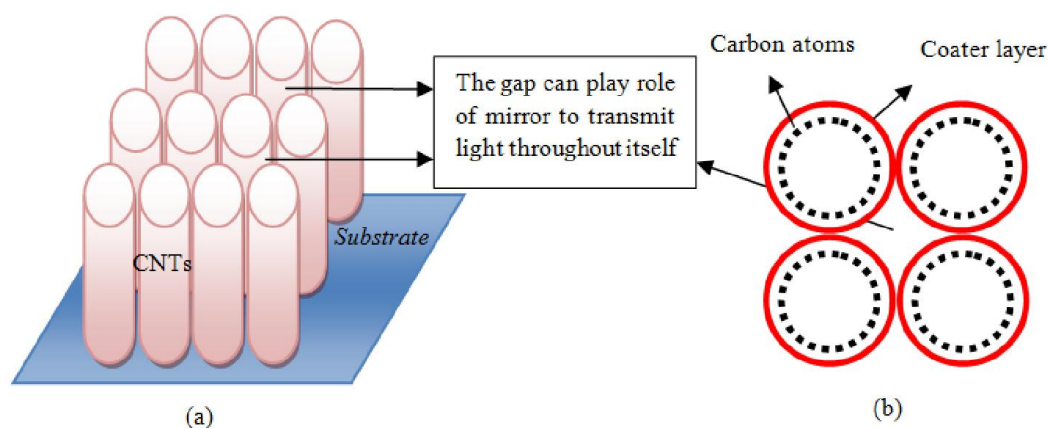


Figure. Schematic from Carbon Nanotubes: a) 3D view, b) view from the top of canals

DISCUSSION

Carbon Nanotubes (CNTs) was grown in the form of clusters from a lot of cylinders which arranged vertically as be shown in figure. According on some research showing that carbon Nanotubes can be coated by glossy elements such as Ag (Gan Jet Hong Melvin *et al.*, 2015) and Cu (Edward Joshua T. Pialago *et al.*, 2015) on outside surface of carbon Nanotubes. When is saw on gaps between two carbon anotubes coated by glossy materials, the idea reaches to mind that the gaps which are very similar to canals in Nano scale, can play the role of optical fiber in guiding the light beams. The guess is exist that perhaps the glossy materials can play role of core of optical fiber in carbon Nanotubes and the carbon Nanotubes take responsibility cladding of optical fiber in carbon Nanotubes. Therefore, the carbon Nanotubes may be the next generation of optical fiber and be used for transmission of light beams throughout itself gaps or frome itself inside. Furthermore, according a study which has been performed by Gerard Mourou *et al.* (2014) claim whit improving the transmission properties of optical fibers, they can replace with accelerators in future to carry out today tasks of accelerators. To going into the depth, the today accelerators application contain researching on particle physics and especially medicine application (Mahjour, 2014) such as treat of cancer (Mahjour, 2014) which is very vital today and it is carrying out by some methods such as particle therapy that the method be improved by improving in accelerator industry.

Summery

In this paper first with introduce the optical fiber instruction nutshell, and in continuo, with presenting carbon Nanotubes, its properties and structure shortly, the prospect of making future accelerators carbon Nanotubes was considered or perhaps they can participate in making accelerators. Albeit, all guesses considered in this paper is like other common prospect in all tendencies with the hope that it would be great to achieve this goal because, today, with expanding the cancer in all corners of world this need more than ever to be seen that accelerators to be produced at lower price to use in all place of world even poor countries.

Because, today, shortage advanced cancer therapy facilities causing many families have been tears in many corners of world especially in poor counties.

Acknowledgment

Here, I want to send best regards to those people that help to make happiness even one family by trying in improvement of cancer therapy industry and wish they be successful.

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